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A Lecture

ON

FIBROMA, SARCOMA, AND FIBROMYOMA OF THE ABDOMINAL WALL.

Delivered at St. Bartholomew's Hospital on June 8th, 1910,

BY C. B. LOCKWOOD, F.R.C.S. ENG.,
SURGEON TO THE HOSPITAL.

GENTLEMEN,—I lecture to-day upon some instances of fibroma, sarcoma, and fibromyoma of the abdominal wall. These tumours must be very rare. Over a very long period I have met with seven. I suppose they comprise about ½ per cent. of abdominal tumours, omitting ruptures. I have seen very few references to them in literature. But it is better that I should lecture to you upon them rather than upon diseases which you have frequent opportunities of observing for yourselves. Once a fibroma was met with in a man; all the rest occurred in females.

TOPOGRAPHY.

They are all situated on the front abdominal wall. Only two were found to the left of the middle line, the remaining five being upon the right side. I do not know that this fact has any particular significance, but I noted it as rather strange. Perhaps in a larger series the numbers might be altered. The anatomical situation is a point, as you will see presently, of some importance, and ought to be more accurately noted than has hitherto been done by myself. As a rule the tumours are situated in the aponeurotic structures, but not always. Here is one in the back of the sheath of the rectus; another in the lower part of the right semilunar line; one in the upper part of the right semilunar line; one in the front of the sheath of the rectus; one in the conjoined tendon of the internal oblique and transversalis; another in the substance of the external oblique muscle above the eleventh costal cartilage; and finally, one consisting of fibrous tissue with unstriped fibres in the left inguinal canal, and, in my opinion, in the round ligament of the uterus.

The anatomical situation of these tumours ought to be noted, because some are spindle-celled sarcomata which return after removal and ultimately kill the patient. To successfully extirpate a spindle-celled sarcoma it is necessary to make a very wide removal of the muscle in which it is growing. Presently I shall point out to you that it would be better to remove the whole muscle in which the sarcoma was growing. This is not possible in the case of the abdominal muscles. But if you know in which muscle it is growing you can make a very wide removal of that particular muscle. I regret not to have had more definite information as to the exact muscle in which some of these tumours grew. With such information better operations might have been done.

MORBID ANATOMY.

To the naked eye these tumours have the ordinary characters of the fibrous structures of the body. Perhaps they may look a little redder, but there is nothing distinctive in their naked-eye appearances. Some of them are like the gizzard of a fowl in shape, in colour, and in consistence. But there is another point in the morbid anatomy to which you must pay attention. Some have a capsule. I show you some specimens of it. The presence of a capsule implies innocency. Microscopical sections of these encapsuled tumours show that they are composed of fibrous tissue. I believe that the encapsuled tumours do not return after removal. But there are others which have no capsule. It is true that they have well-marked outlines, but at some part, usually along the course of the fibres of the muscle in which they are growing, they are extending very widely. When these tumours are microscopically examined they consist of fibrous tissue, with the addition of spindle-shaped cells; in other words, they are spindle-celled sarcomata, one of the most dangerous forms of sarcomata which you will meet with—dangerous because the sarcoma recurs after removal. Obviously, when removing one of these tumours of the abdominal wall the presence or absence of a capsule is of great importance. When there is a capsule the tumour can be shelled out, and it should not grow again. But if there be no capsule the greatest possible care must be taken to make a wide removal; and, I would add, to watch the patient very closely afterwards. During the course of your operation it is wise to examine microscopically portions of the tissues removed, to see whether you are removing tumour or fibrous tissue. I have told you that the naked-eye characters of these tumours approximate closely to the naked-eye characters of the aponeurotic structures of the abdominal wall.

ETIOLOGY.

As regards the etiology, there is nothing to suggest that these tumours are of developmental origin. Fibrous nodules, even bony nodules, occur in the abdominal walls, and I have met with them in the semilunar lines. There is reason to suppose that they are embryological structures and attempts at the formation of abdominal ribs. And, as you are aware, where such developments take place, pathological events also supervene. But observe that these tumours are situated almost anywhere in the front of the abdomen: over the costal cartilages in the semilunar lines, in the front of the sheath of the rectus, in the back sheath, and so on. There is very little evidence to show that they are caused by anything which has been applied to the body. One young woman volunteered the information that two years before the tumour appeared she had had a severe blow in that position. I do not think it is right altogether to ignore this history of a blow or an injury. An injury results usually in the extravasation of blood. Extravasation of blood brings about inflammation, and inflammation brings about tissue changes, and these tissue changes may bring about cell multiplication, and this cell multiplication may run wild and result in the formation of a tumour. Quite a common sequence of events in the tongue is the application of some irritant which causes the tongue to inflame; then the proliferation of the epithelium until a lump is formed; then the epithelium grows along lymph spaces and lymphatics, and onwards into the neighbouring lymphatic glands. At that stage you would diagnose an epithelioma of the tongue. I cannot help believing that in the breast a blow is sometimes the preliminary to the formation of carcinoma, because a blow results in the extravasation of blood; an extravasation of blood inflames the breast tissue, and the result is a chronic mastitis. The epithelium of the acini or of the ducts proliferates, just as the epithelium of the tongue does, and goes into the lymph spaces and onwards into the lymphatic glands. Seen at that stage, you would say that the patient had carcinoma of the breast. It is conceivable to me that a similar course of events might lead to the proliferation of the connective tissue cells of the abdominal wall, and to the production of a fibroma, or even of a sarcoma. There is no evidence to show that these tumours are ever due to anything introduced into the body. But, again, I would not draw too wide inferences from the absence of evidence on this point. Certainly, things introduced into the body can produce tumours of considerable size. The spirochæta pallida introduced into the body can cause gummata, which have over and over again been mistaken for sarcomata. So that if any of you attempt to investigate the production of sarcomata you should not, I venture to suggest, ignore those possibilities.

CLINICAL HISTORY.

With regard to the clinical history of these tumours, the patient usually says that they are painless, and certainly they are not tender to the touch. The fibromata are of long duration; they take years to grow. In the case of a man with one behind the sheath of the right rectus there is a history of 14 years, and others, I see, had histories measured by years. The growth of sarcomata, on the other hand, is measured by months. So that an accurate clinical history throws some light on the nature of the tumour and the course which it might pursue. I suppose that if a fibroma was left alone it would continue to grow slowly; after the lapse of years it might calcify, but this is purely speculation on my part. Sarcomata will continue steadily to increase in size, and I believe they may attain a considerable size. One of the few cases which I have met with is one recorded by an American surgeon. This sarcoma of the abdominal wall was described by Dr. Alexander Johnson. He removed a spindle-celled sarcoma from the abdominal wall of a woman; it had been growing two years, he says, in spite of internal and external applications. It measured at the time

of the operation 8 inches in length by 6 inches in breadth, which, of course, betokens a tumour of considerable size. He goes on to mention another case which he had seen, in which the spindle-celled sarcoma had undergone a change which is so common in malignant growths—namely, degeneration and ulceration. Sarcomata growing elsewhere, especially those in the limbs, undergo the same degeneration and ulceration. Not infrequently the ulcer becomes infected and the patient dies from septicæmia. I suppose that these sarcomata of the abdominal wall, if left alone, would lead, as sarcomata in other parts do, to dissemination, and that growth would be found in the lungs, in the osseous system, in the liver, or in other abdominal organs.

DIAGNOSIS.

When a hard tumour is felt in the front of the abdomen the question at once arises whether it is inside or outside the abdomen. You may think that that is a very easy question to answer. But I remember showing a patient with a fibroma in the left conjoint tendon to my colleagues, and there were great differences of opinion upon this point. Most thought it was inside the abdomen. Before the operation the patient had been treated with castor oil, because it was thought that the tumour might have been inside the abdomen and inside the sigmoid flexure, and therefore might have been a hard fæcal lump. The treatment had no effect upon it. During the consultation it was suggested that it was a tumour in the sigmoid flexure—that is to say, a carcinoma. Others suggested that it might be a growth connected with the pelvic organs, a small ovarian tumour, or a subperitoneal fibroid. So that the diagnosis of these tumours may not be at all easy.

As regards their position in the abdominal wall, you may, in a difficult case, be able to satisfy your mind upon that point by putting the muscle into action. If the tumour is situated underneath the muscle it would of course disappear and be hidden when the muscular fibres are contracted. A tumour in the muscle would under such circumstances remain where it was. However, inasmuch as one of these tumours was situated at the back of the sheath of the rectus, it disappeared, too, when the rectus was put into action. One patient had a fibroma in the right semilunar line, close to McBurney's point. That was thought by some to be an appendicular tumour. Indeed, the diagnosis was not cleared up until the operation. The fibromyoma of large size in the left inguinal canal, and reaching from the anterior superior spine of the ilium as far as the crest of the pubis, was difficult to diagnose. It was so immoveable that it seemed to be growing from the pelvis. I cannot help thinking that someone had thought that because we found an operation scar five inches long over the front of the tumour it had been exposed and a portion removed and had been assumed to be a sarcoma. Perhaps the operator thought it was too firmly fixed for her to undertake its removal. I prepared to tie the external iliac vessels, and provided saws and bone forceps, because it might be necessary to remove a portion of the pelvis. However, the tumour was extracted without any particular difficulty. The crest of the pubis was taken away so as to remove as much as possible of the tissue in which it was growing. Until the permanent histological specimens had been seen I thought it might be, after all, a sarcoma.

The following is an error in diagnosis. A man had a hard painless tumour in the middle of the right rectus abdominis, opposite the eighth costal cartilage. Its outlines could be felt very distinctly, and it was thought to be fibroma or sarcoma of the abdominal wall. However, it was a chronic abscess with very thick walls. The pus in the abscess was sterile, and the pathologist had never been able to ascertain the cause of it. On another occasion I mistook a cyst in the substance of the rectus for a fibroma. A man had a small firm tumour in the middle right rectus abdominis muscle about two inches below the level of the umbilicus. It was known to be in the rectus because when the muscle was put into action we could feel the tumour as easily as before. However, it was a cyst with walls about one-sixth of an inch thick and composed of fibrous tissue. It contained clear yellow fluid. Its origin has never been ascertained. The fluid did not contain hooklets and the histological examination of the cyst wall gave no information.

SURGICAL TREATMENT.

The surgical treatment of these tumours of the abdominal wall depends upon their pathological characters. An encapsulated tumour may be removed from its capsule, especially when you know that the tumour consists of fibrous tissue. But if there is no capsule and if the tumour is growing along one of the abdominal muscles then the removal becomes a matter of greater difficulty. I have already said that the ideal method of removing a sarcoma of muscle would be to take away the whole muscle from beginning to end. But I have already said that this is not possible in the case of abdominal muscles. Nevertheless, I am quite sure that the wider the margin you give these sarcomata the better. A patient in Lucas Ward had had a sarcoma removed from the upper part of the right semilunar line. It grew again nine months after the operation. I made a very wide removal. A few months elapsed and then the unfortunate patient had a recurrence. I made my first attempt on Sept. 22nd, 1908, and the second on Dec. 2nd, 1909. A very wide operation was done for the removal of the nodules. The abdominal cavity had to be freely opened. Mr. E. Shaw was present at the operation, and examined the pieces taken away until normal tissues were met with. A further attempt has since been made. In my very limited experience these sarcomata were confined to the abdominal wall. This is a very important point, because if they were to attack the abdominal viscera, the possibilities of removal would be more remote. But although in this last instance I had to remove a large piece of abdominal wall, I was able to do it because the growth had not extended into the liver, or the colon, or the underlying intestines.

RECURRENCE.

I speak of recurrence. What does a recurrence mean? Offhand, I should say recurrence meant that the surgeon had left some piece behind to go on growing. This may not be quite true, because once I removed a tumour, which was said to be a fibroma, from the external oblique muscle, where it overlies the eleventh costal cartilage. Two years later a spindle-celled sarcoma was removed from the front sheath of the right rectus muscle, some distance from the site of the original operation. I was able to remove the front sheath of the rectus, and some of its fibres, and bring the very large gap together. The patient recovered and had a satisfactory abdominal wall, but I never heard whether the tumour grew again. This does not suggest that a piece of the first tumour had been left behind and gone on growing, but rather that the patient had a new growth of more severe type a little way from the old tumour. During the operation the neighbouring lymphatic glands ought to be taken into consideration. I do not know what you are taught now, but I was once taught that sarcomata spread by the blood stream and not by the lymphatics. I hope that is now an exploded superstition. Over and over again, in cases of sarcoma, I have removed lymphatic glands with sarcoma in them. When I removed that large fibromyoma the glands in Scarpa's triangle were enlarged; they were removed, but contained no growth. Also the glands along the course of the external iliac artery were enlarged, and I divided the deep epigastric vessels and removed them, but they had no growth in them. But I did not trust the lymphatic glands. I suppose the ideal method of removing sarcoma in muscle would be to remove the whole muscle and its lymphatic glands. But there I am brought up against a wall of blank ignorance on my part. I do not know the lymphatics into which a particular muscle drains. I have looked into that excellent book of Poirier's and into Bartel's with scant success. We may suppose that a muscle like the sartorius drains itself into the glands of the groin. But how do I know that they do not pass into the pelvis and open into the pelvic glands? Thus removing a sarcoma of the sartorius it is possible that growth might be left in the retrocrural glands.

If any gentleman here wants a subject for anatomical investigation I am sure he would be repaid by investigating the course of the lymphatics of individual muscles. I as a practical surgeon want to know it. Doubtless these sarcomata spread by way of the circulation, but I have no knowledge of that in connexion with sarcomata of the abdominal wall.

CASE 1. *Fibroma, anterior sheath of rectus.*—A Jewess, aged 15 years. A tumour had been growing for two years. It was situated on the anterior sheath of the right rectus about its middle and opposite the eighth costal cartilage. It was removed by division of the sheath, which was afterwards closed by three buried silk sutures. Microscopical examination showed that the tumour was a fibroma. The tumour was removed on August 7th, 1897, and we have been unable to

ascertain whether it recurred, although Mr. Abrahams has searched the hospital records.

CASE 2. *Fibroma, left conjoint tendon.*—A young woman, age about 25 years. The tumour felt as if it was in the inner part of the left iliac fossa, and the patient was treated with castor oil to see whether it might not be a fæcal accumulation. She was shown at surgical consultations, and the case led to considerable difference of opinion. It seemed impossible to decide whether the tumour was situated in the abdominal wall or inside the abdomen; and if inside, whether it was connected with the intestine or with the pelvic organs. An exploration showed that it was an encapsuled tumour outside the peritoneum and in the conjoint tendon of the internal oblique and transversalis. To make sure of a complete removal a portion of the crest of the pubis was removed. The abdominal wall was closed in layers with buried silk sutures. Seen at a later date the result was perfect. Microscopical examination showed that the tumour was a fibroma.

CASE 3. *Fibroma of the abdominal wall.*—A woman, aged 24 years. There is some uncertainty about the microscopical diagnosis of this case—whether it was a fibroma or a fibrosarcoma. The tumour was situated in the right semilunar line near McBurney's point. The question of it being an appendicular swelling arose, but at the operation it was found to be entirely in the abdominal wall. Nothing is known about the subsequent history.

CASE 4. *Fibroma of the abdominal wall.*—This is the only instance of a fibrous tumour occurring in a man. His age was 32 years. A lump had grown in the right rectus abdominis at about on a level of the anterior superior spine of the ilium. It is said to have been growing for 14 years. At the operation it was found between the right rectus abdominis and its posterior sheath and was easily shelled out. The microscopical examination showed that it was a fibroma.

CASE 5. *Fibrosarcoma of the abdominal wall.*—This patient was operated upon on Jan. 26th, 1896, at the Great Northern Central Hospital. She was about 30 years of age. The tumour was situated amidst the fibres of the external oblique muscle and upon the eleventh costal cartilage, so that there was no difficulty in ascertaining that it was in the abdominal wall. It was considered to be a fibroma, but 22 months later a tumour was again found in the abdominal wall, in the front sheath of the rectus on a level with the eleventh costal cartilage. This new tumour was removed without opening the abdominal cavity. A large gap was left in the front sheath of the rectus, and was closed with about one dozen buried silk sutures. The patient made a good recovery, but nothing has been heard of a subsequent history. The microscopical examination showed the tumour to be spindle-celled sarcoma.

CASE 6. *Fibrosarcoma of the abdominal wall.*—A female, aged 20 years. There was a history of a blow upon the abdomen in 1904. In 1906 a tumour appeared in the right semilunar line above the level of the umbilicus. This was removed abroad, but nine months afterwards a recurrence took place. On Sept. 22nd, 1908, the scar of the former operation reached from the ninth costal cartilage 5 inches downwards and had in it an irregular tumour. At the operation the whole of the scar together with the tumour and a margin of healthy abdominal wall was removed. The abdominal cavity was opened; the gap was closed by displacing the right rectus abdominis outwards. On Dec. 2nd, 1909, the patient returned with two nodules in the scar. One was situated over the costal cartilage. It was freely taken away, together with the ninth costal cartilage and parts of the ribs. To remove the nodule in the lower part of the scar, the peritoneal cavity was opened and a considerable part of the abdominal wall was taken away. During the operation Mr. E. Shaw made sections of the tumour, and had this not been done some growth would undoubtedly have been left behind. The growth was a spindle-celled sarcoma.[1]

CASE 7. *Fibromyoma of the abdominal wall.*—A married woman, aged 33 years, noticed a lump in the left groin about November, 1908. A year later this tumour was explored, but was not removed. In January, 1909, it had attained considerable size; it was oval in shape, and its long axis reached from the left anterior superior iliac spine to the crest of the pubis; a scar 4 inches in length ran along its centre. It was exposed by cutting the aponeurotic fibres of the external oblique muscle; it was thought to occupy the inguinal canal. It was shelled out without much difficulty, but was attached to the crest of the pubis, which was removed together with the tumour. The glands in Scarpa's triangle were enlarged and were therefore removed, but they contained no growth. Also some of the lymphatic glands along the external iliac artery were enlarged. To reach these the epigastric artery and veins were divided. After they had been removed it was found that they contained no growth. The large gap in the abdominal wall could only be partially closed, so that after the wound had healed *per primam* a suitable truss was fitted. The tumour was a fibromyoma, and, in my opinion, had originated in the left round ligament of the uterus.

CASE 8. *Cyst of the abdominal wall.*—A man, aged about 30 years, had a hard elongated tumour at the outer edge of the right rectus a little below the level of the umbilicus. By some this tumour was thought to be appendicular, but it could be felt when the rectus muscle was in action, just as well as when the muscle was relaxed. It proved to be a cyst 3 inches long and 1 inch in diameter in the midst of the muscular fibres of the rectus. Its walls were about one-fifth of an inch thick and composed of fibrous tissue. It contained clear yellow fluid. This fluid contained no hooklets. The pathological examination threw no light whatever upon the origin of this curious cyst, which before the operation I had mistaken for a fibroma or fibrosarcoma of the abdominal wall.

CASE 9. *Abscess of the abdominal wall, mistaken for fibroma.*—A man, aged 23 years, had a hard tumour at about the middle of the right rectus abdominis on a level with the eighth costal cartilage. This had been mistaken for a solid tumour. It contained about half an ounce of pus surrounded by hard inflammatory tissues. The pus was sterile, but the cause of the abscess was not ascertained.

I have to thank Mr. Adolphe Abrahams for having kindly obtained these notes.

[1] A fourth removal was done in July, 1910.

A Clinical Lecture
ON
ACUTE LARYNGEAL DYSPNŒA IN CHILDREN.

Delivered at St. George's Hospital

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GENTLEMEN,—I have elected to discuss this subject to-day because the various conditions in which laryngeal obstruction occurs are often found to be rather confusing, and because a clear idea of the causation of these conditions is of very considerable practical and clinical importance. I have selected for consideration only cases of obstruction of the entry of air through the larynx in children, because this symptom is relatively common in childhood and because, by confining my remarks to children, I hope to be able to lay before you a clear picture of these various conditions.

One reason why laryngeal obstruction is commoner among children is that the lumen of the glottis is not only absolutely but relatively small for the needs of the organism. This is well illustrated by cases of abductor paralysis of the vocal cord. When one vocal cord is paralysed in this way, and this is a common result of pressure on the left recurrent laryngeal nerve, the affected cord lies motionless in the middle line and only one-half of the glottis is available for respiration on abduction of the healthy moveable cord; but in the adult this is amply sufficient for quiet respiration, and dyspnœa only occurs on exertion, whereas in the child unilateral abductor paralysis produces marked and even urgent dyspnœa. The principal reason, however, why laryngeal obstruction is so much more common in children is that the tendency to spasm of the glottis is far greater in the early years of life, when the nervous system is most sensitive and the reflexes most active. Indeed, spasm is a most important factor in nearly all forms of laryngeal obstruction, as is shown by the intermittent character of the dyspnœa, even where the obstruction is obviously largely mechanical, as in cases of tumours or of foreign bodies in the larynx.

SOME POINTS IN DIAGNOSIS.

Before discussing the causation of the various forms of obstruction, a few words may be said on the diagnosis of laryngeal dyspnœa generally and its differentiation from obstruction situated lower down in the trachea. In cases of laryngeal obstruction there is well-marked inspiratory stridor, while expiration is comparatively easy; this is owing to the shape both of the glottis and of the upper laryngeal aperture which have somewhat the effect of a valve and obstruct the downward more than the upward passage of the air. Again, when the obstruction is within the larynx the organ is forced distinctly downwards with each inspiration, and this "laryngeal excursion" is an important sign of stenosis in this region, for it does not occur when the obstruction is situated elsewhere. The head is thrown back in order to open up the laryngeal region, and the voice is affected unless the stenosis is purely due to spasm of the cords or to abductor paralysis. On the contary, in cases of tracheal stenosis, the stridor is heard during expiration as well as inspiration; there is no laryngeal excursion; the patient sits with the head bent forwards so as not to stretch, and therefore narrow, the trachea; and there is no hoarseness, although the voice is necessarily weak and breathless.

CAUSES OF LARYNGEAL DYSPNŒA.

The causes of laryngeal dyspnœa range from a pure reflex spasm of the glottis, as when the larynx is touched with a probe, to simple mechanical obstruction, as where the lumen is completely blocked by a lump of meat. But the large majority of cases lie intermediately between these two extremes, and are due partly to spasm and partly to

mechanical reduction in the size of the lumen. When spasm occurs all the laryngeal muscles probably contract, but, the adductors being far the stronger, the result is closure of the glottis. This spasm is a reflex act, and may be produced experimentally by stimulating the centripetal fibres of the vagus; the reflex spasm so produced is always bilateral, and clinically spasm always affects both cords together.

In trying to make clear the various conditions in which larnygeal dyspnœa occurs in children, we can arrange them into three groups: (1) pure spasm; (2) acute laryngeal affections; and (3) chronic laryngeal obstructions; but I will deal to-day only with the first two.

1. PURE SPASM.

By pure spasm, I mean reflex spasmodic closure of a larynx which is perfectly healthy and normal, the stimulus which originates the reflex being situated in another part of the body. Such reflex spasms occur in adults in unstable conditions of the nervous system, as in hysteria and neurasthenia, but, as I have already remarked, children are especially susceptible.

Laryngismus stridulus is a spasmodic affection which occurs in children, usually between the ages of six months and two years. The necessary predisposing cause is a morbid excitability of the nervous system, and the child is always in an ill-nourished and unhealthy condition, and is frequently the subject of rickets; the exciting cause of the reflex may be situated in the alimentary tract and be an overloaded stomach, gastritis, or worms, or in the pharynx, and be due to the presence of adenoid vegetations. The attack begins with a few short noisy inspirations, followed by complete cessation of breathing, and ends with a loud crowing inspiration. During the apnœic stage signs of asphyxia become apparent, and there are often also carpopedal contractions. In the apnœic stage the spasm is so tight as to allow no air to enter, and the most severe cases are occasionally, though very rarely, fatal. Nurses call the attacks "passion-fits" or "holding the breath"; they vary much in frequency and may recur several times in a day. In the intervals between the attacks there is no abnormality of any kind to be detected and no hoarseness or cough such as is present in other forms of laryngeal spasm.

2. ACUTE LARYNGEAL AFFECTIONS.

The acute laryngeal affections which may produce dyspnœa are, with the exception of foreign body, local inflammatory conditions. The stenosis is the result partly of spasm and partly of mechanical obstruction. The three principal forms are laryngitis stridula, œdematous laryngitis, and laryngeal diphtheria.

Laryngitis stridula is often confused with laryngismus stridulus. The former is, like the latter, a spasm of the larynx, but differs in that the exciting cause of the reflex is situated within the larynx and is, in fact, a simple catarrhal laryngitis. The affection is therefore a catarrhal laryngitis in which spasm of the glottis is a marked feature, and it may well be called "spasmodic laryngitis." The predisposing nervous excitability is not so marked a feature as in laryngismus stridulus, but as every child with a laryngeal catarrh does not get spasm it is to be presumed that it exists in some degree; there is no doubt that the presence of adenoids increases the irritability of the throat and is an important factor in the production of the spasm. The onset is that of an ordinary catarrh which spreads to the throat accompanied by slight fever, cough, and hoarseness. Then, usually during the night, after a fit of coughing the spasm comes on with inspiratory stridor, retraction of the epigastrium and lower ribs, and the signs of asphyxiation which persist until death appears imminent, when the spasm finally relaxes. More than one attack may occur during the night but seldom in the day, though the spasm usually recurs for one or two nights but nearly always with dimishing severity. In the intervals and during the day the little patient is hoarse and has the ordinary symptoms of catarrh, and this serves to distinguish the case from one of laryngismus stridulus, in which there are no laryngeal symptoms between the attacks of spasm. The spasms of laryngitis stridula are not so short and sharp as those of the purely spasmodic affection and, though alarming, are practically never fatal; the stridulous breathing usually continues for several minutes, which may be contrasted with the two or three noisy inspirations of laryngismus, and there is rarely a completely apnœic stage in which the spasm is too tight to allow any air to pass, as in the so-called "silent" cases of laryngismus.

Œdematous laryngitis.—Acute inflammation of the larynx may rapidly give rise to sufficient œdema to obstruct the entry of air. This is not a frequent result of simple catarrhal laryngitis, though it is far commoner in children than in adults, and for this reason laryngitis in young people should never be looked on as a trivial ailment. The term, sometimes used, "œdema of the glottis" is a misnomer, for the cords themselves contain no loose subepithelial tissue and cannot be the subject of acute œdema. The swelling is usually situated at the upper aperture of the larynx, especially on the arytenoids and aryteno-epiglottidean folds, but it sometimes occurs in the subglottic region. The symptoms are those of a catarrh, generally severe, with decided constitutional disturbance, in which dyspnœa ensues with more or less rapidity. If spasm be present as well, the dyspnœa is to some extent paroxysmal, but the intermissions are far from complete, and the dyspnœa tends rapidly to become continuous.

Laryngeal diphtheria will only be discussed as a cause of dyspnœa, as a full consideration of the disease would be out of place in this lecture. It is much more apt to invade the larynx in young children than in adults; but this extension is now far less common than it was before the general and early use of antitoxin, for it may be said that if a sufficient dose has been administered before the larynx has been implicated this organ will not subsequently become affected. It should always be remembered that the deposit may be primary in the larynx, although this is very rare. The early symptoms are hoarseness and cough, the latter loud and ringing at first, but becoming later hoarse and "croupy." When laryngeal obstruction comes on it is at first largely spasmodic and paroxysmal in character, with intervals of quiescence. It is generally worse in the night and gradually becomes continuous.

Although formation of membrane is usually due to the diphtheria bacillus, there is now no doubt that a membranous exudation may also be caused by other organisms, especially the streptococcus, either as a primary affection or as a complication of the specific fevers, such as scarlet fever. Non-diphtheritic *membranous laryngitis* occurs especially in children between the ages of two and eight years, and it is generally primary in the larynx. It begins as a catarrhal laryngitis, but a loud ringing cough soon appears and is followed by spasm, and the temperature rises to 102° or 103° F. The attacks of dyspnœa come on at night, and the symptoms often abate somewhat towards morning, to recur more severely on the following evening, so that the severest stage may not be reached for two or three nights. As in all these affections, spasm predominates at first, but later the dyspnœa becomes continuous. The prognosis of non-diphtheritic membranous laryngitis is graver than that of true diphtheria since the introduction of antitoxin.

In the diagnosis of these acute affections it must be remembered that in all of them spasm plays an important part in the causation of the dyspnœa and that the spasm is never continuous but always paroxysmal and intermittent. Therefore, when the affection is purely spasmodic, as in laryngismus stridulus, the patient is perfectly free from symptoms between the attacks and has neither dyspnœa, hoarseness, nor fever. The dyspnœa of laryngitis stridula is also entirely due to spasm and is completely intermittent, but during the intermissions symptoms of catarrh remain and there are hoarseness and some rise of temperature. The spasms are, however, very alarming to the little patient's friends and cause grave anxiety in the mind of the medical attendant lest the disease develop a more dangerous form. If the dyspnœa ceases to be intermittent and remains marked between the exacerbations, it is certain that more serious disease is present, such as œdema, diphtheria, or non-diphtheritic membranous laryngitis. The larynx cannot always be examined in a young child with urgent dyspnœa, but if it is possible a very rapid inspection is sufficient to show the greyish-white membrane lying on an inflamed and reddened mucosa. Children seldom cough out any membrane before tracheotomy has been performed. In diphtheria the fauces are nearly always first affected and the diagnosis is therefore rarely in doubt. In primary cases the enlargement of the cervical glands, albuminuria, the asthenic character of the fever, and the small rapid pulse will help to distinguish diphtheria from œdematous laryngitis. Non-membranous

laryngitis can only be differentiated from diphtheria with certainty by bacteriological examination, though the disease is more often primary in the larynx and the fever is generally higher and of a more sthenic type.

Other Causes of Acute Dyspnœa.

There are two other important causes of acute dyspnœa in children—namely, acute retro-pharyngeal abscess and foreign body. The former arises from infection of the post-pharyngeal lymphatic glands which are well developed in childhood and atrophy in later life, and should be distinguished from the chronic form of abscess due to spinal caries. The symptoms are those of acute fever of rapid onset, with severe dysnnœa and often hoarseness and croupy cough, but there are usually also pain and difficulty on swallowing, with regurgitation through the nose and swelling of the glands in the neck; the rounded fluctuating swelling on the posterior pharyngeal wall can be readily seen or felt. These cases do well after free incision through the pharyngeal wall with the head in the dependent position to avoid entrance of pus into the lungs, whereas the chronic abscess should be opened by incision through the neck to obviate infection of the tuberculous material by organisms from the mouth and throat.

It should never be forgotten that dyspnœa coming on suddenly without obvious cause may be due to the entrance of a foreign body into the larynx or trachea. A large mass lodged in the larynx or in the pharynx above the laryngeal aperture causes complete obstruction to respiration and rapid death if not removed; but a small body in the larynx excites spasm and a violent attack of dyspnœa which, though it may prove fatal, generally passes off and the symptoms are then some degree of hoarseness or aphonia depending on the size and position of the foreign body, cough, and occasional attacks of spasm which come on suddenly and irregularly and are often induced by any movement. The symptoms of a foreign body in the trachea are very similar; as long as it remains fixed the symptoms are slight, consisting chiefly of discomfort and perhaps some respiratory stridor, but as soon as it shifts its position it causes cough and is driven up against the glottis and sets up a fresh spasm. In this way the substance may be ejected, but usually the cords close too quickly for it and it remains in the trachea or falls into a bronchus and becomes impacted. The later results of inflammation of the larynx, air tubes, and lungs I will not now discuss.

Treatment.

The treatment of spasm must be considered under two heads, that of treatment during the paroxysm and that of preventive treatment between the attacks. The spasm of laryngismus stridulus is very short and sharp and there is little time to put the child into a hot bath and pour cold water on to the head, as has been recommended. The quickest and surest way to relieve the spasm is to hook the epiglottis forward with the finger, a manipulation which can easily be taught to the mother or nurse. The spasm also may cease on stimulating the conjunctiva by touching it with the finger or on tickling the nasal mucous membrane with a feather. The inhalation of amyl nitrite may be tried and can be quickly employed by means of breakable glass capsules. A fatal result is extremely rare. In the preventive treatment overloading of the stomach must be carefully avoided, regular action of the bowels ensured, and all gastro-intestinal irritation prevented, while a course of rhubarb and soda or magnesia is indicated; a change of air to a higher locality, or even to the top of the house, is very beneficial; and rickets, if present, must be treated. It has already been said that adenoids are a powerful source of irritation and their removal in children predisposed to laryngismus is an essential part of the treatment. As a sedative, if the attacks are frequent and severe, small doses of bromide may be prescribed or, better, the liquid extract of grindelia in 10-minim doses in milk every three or four hours.

The spasm of laryngitis stridula is neither so acute nor so transient as that of laryngismus and can usually be allayed by the induction of vomiting. Ipecacuanha is the most useful emetic for the purpose, as its expectorant action is of value in the treatment of the accompanying laryngitis; drachm doses of the wine or 5 grains of the powdered root may be given every half hour to a child of 2 years of age until vomiting occurs. A combination of ipecacuanha and tartar emetic may act better than either drug alone, and Whitla recommends 10 minims each of vinum antimoniale, vinum ipecacuanhæ, and syrupus scillæ every 15 minutes until vomiting occurs for a child 1 year old. When the spasms are severe nitrite of amyl may be tried, or nitro-glycerine gr. $\frac{1}{100}$ every three hours, and sometimes belladonna is of value. For the rest, the treatment is that of the laryngitis, the child being kept in bed in a warm, well-ventilated room and the ipecacuanha mixture continued every three hours after the cessation of the spasm. The dyspnœa is likely to recur on the next few nights but with diminishing severity; if it lasts longer a nourishing diet and tonic treatment are indicated. Children subject to laryngeal spasm nearly always suffer from adenoids and these should be removed after the laryngitis has subsided. If the laryngitis grows worse and the dyspnœa becomes continuous and severe you may be sure that œdema is occurring or membrane forming in the larynx. An attempt should then be made to inspect the larynx, and this is frequently possible even in very small children, as a rapid glimpse is sufficient to show the swollen upper aperture or the whitish membranous deposit; failing this the part should be quickly palpated with the finger. If œdema be present leeching may be tried, one or more being applied over the manubrium sterni rather than to the neck, so that the bleeding may be arrested, if necessary, by pressure. An ice-bag to the neck is hardly permissible in very young children, but may be applied with caution in older cases for not more than about three hours, and a spray of adrenalin may be used, but too much time must not be spent on these palliative measures, for children are quickly exhausted by dyspnœa and collapse with great rapidity. If the upper aperture can be felt to be swollen it should be freely scarified with a guarded curved bistoury guided by the left forefinger on the affected part. This often gives rapid relief, but if it is insufficient, or if the swelling is out of reach in the subglottic region, tracheotomy or intubation must be performed without delay; I believe that the former operation is most suitable for these cases, and the opening should be fairly low, for the subglottic swelling may extend for some distance down the trachea.

I need only refer to the treatment of the laryngeal symptoms of diphtheria; here emetics should in general be avoided as depressing, but if dyspnœa is marked in an early stage while the strength is well maintained an emetic dose of ipecacuanha will often do good. Intubation or tracheotomy should not be long delayed, especially as the heart is already weakened by the toxins of the disease. I have not time to discuss the relative advantages of these two operations, but will only remark that intubation is of great value in the treatment of diphtheria in institutions where medical aid is always within reach, and that it appears from statistics to be the safer operation for children under five years of age, though this is very probably merely because it is often performed at an earlier stage than tracheotomy. If the latter is preferred a fairly low tracheotomy is advisable, both because the membrane may extend down the trachea and because the low operation is less irritating to the larynx and less often gives trouble in removal of the tube. The tube must be dispensed with as early as possible, for the longer the little patient becomes accustomed to it the more difficult it is to take it out. Two to four days is now usually sufficient for a case of diphtheria when antitoxin has been given; a fenestrated tube should first be inserted and kept closed for some time with a cork in order to make quite sure that respiration is unobstructed. The treatment of non-diphtheritic membranous laryngitis is on similar lines and antitoxin must be given owing to the impossibility of at once excluding diphtheria. Calomel is much recommended; 1 or 2 grains every three hours until the bowels have acted freely and then three or four times day in combination with iron.

Chichester Infirmary.—The reconstruction of Chichester Infirmary has been agreed upon as a memorial to King Edward. To this end Mr. William James has given £10,000, as has been announced. Mr. James Buchanan, High Sheriff of Sussex, has subscribed 1000 guineas, and the Duke of Norfolk and the Duke of Richmond and Gordon £200 each. The total cost of the scheme has been put at £20,000.

AN AID TO DIAGNOSIS IN MALIGNANT DISEASE.

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IN a previous paper on the subject of the alterations in the composition of the urine in malignant disease[1] I gave in full the account of my investigations on the urine of cancer patients. I found that the nitrogenous output of the urine was decreased in cancer, even where the patient was taking a fairly substantial diet; that the urea was diminished proportionately with the total nitrogen, both urea and total nitrogen being diminished to a greater extent than the uric acid, which was in many cases of normal amount. The chlorides and phosphates I found to be excreted in quantities below normal, the reduction in phosphatic excretion being much greater proportionately than that of the uric acid, or of the total nitrogen of the urine. The sodium excretion was also diminished, and to a greater extent than could be accounted for by its retention as sodium chloride. In addition to these facts, I found that in many cases the urine was neutral, and commonly even alkaline, and that the alkaline phosphates were in excess of the acid salts in several cases tested.

All these facts suggested the strong probability that the phosphates were being retained in the body as the alkaline salts, probably of sodium. This belief was strengthened by the statement by Benjamin Moore and others that the alkalinity of the blood is slightly increased in cancer. The fact that the phosphates of sodium are soluble salts points to the possibility of their being retained in the tissue fluids, but wherever in the body this retention be and whether it exists or no there are certain important facts which cannot be overlooked—viz., that the phosphates are practically always reduced in the urine in cancer, whereas the uric acid does not show any constant proportionate reduction. The ratio of $\frac{\text{phosphates}}{\text{uric acid}}$ is thus almost always low and tends to diminish as the disease progresses.

These points suggested to me that an examination of the urine and a determination of this ratio might prove very useful in the diagnosis of obscure cases of malignant disease. I have therefore performed examinations of the urine in a number of cases; 25 of these were undoubted cancer cases, many of them confirmed by microscopical examination after death or removal of the growth by operation. Nine out of these 25 cases were examined several times during the course of the disease, 6 being followed up to the time of their death, the largest number of examinations of one case being 10, and the smallest 2. Of the other cases, 15 were surgical, all but one being taken from the surgical wards of the Manchester Royal Infirmary, and the remainder were chosen from the medical wards of the Manchester Infirmary, while the cancer cases, with the exception of 5, were taken from the Manchester Christie Hospital for Cancer. For purposes of comparison, one normal case was examined six times, and the cases of hernia, varix, fractures, &c., may be considered for my purpose to be normal individuals.

The diets taken will be found stated in the tables. Common diet in the case of a male or female patient consists of the following:—*Breakfast:* A pint of tea or coffee, 4 ounces of bread, half an ounce of butter, and in many cases an egg. *Lunch:* Half a pint of milk. *Dinner:* 4 ounces of beef or mutton for a male and 3 ounces for a female patient, 4 ounces of bread, 8 ounces of potatoes, and milk pudding or custard. *Tea:* The same as breakfast. *Supper:* Half a pint of milk.

Thus it will be seen that of the non-malignant cases 18 were on a common diet, and 4 on milk, slop, or fish diets, whereas of the malignant cases estimated once, 10 were on common and 6 on fluid or largely fluid diet. Of the cases where several estimations were made during the course of the disease, in Case I.B 6 of the estimations were made while the patient was on a meat diet, while for the remaining 4 she was taking soup instead of meat. In Case II B the patient was taking a good meat diet throughout, while in Case III.B 2 estimations were made on a fish diet, 3 on a meat diet, and on 2 occasions soup was taken. In Case IV.B a meat diet was taken during both estimations, while in Case V.B, during 4 estimations a soup diet was taken, and for the last 3 practically a milk diet. Case VI.B took first a soup and then a minced-meat diet, Case VII.B a soup diet throughout, Case VIII.B a meat diet, and Case IX.B a farinaceous diet, with the addition of 5 ounces of soup. Case X.B was a normal individual, and the observations were taken on a normal diet for a healthy person.

As regards the quantity of urine passed, it is too variable to require note, and we shall not discuss it. The uric acid of the urine normally amounts to an average of 0·5 gramme, but the excretion of hospital patients who are bedridden is proportionately lower than this amount. Thus of the 18 non-malignant cases on common diet, 3 were above 0·5 gramme, 2 between 0·4 and 0·5 gramme, 3 between 0·3 and 0·4 gramme, 8 between 0·2 and 0·3 gramme, and 2 below 0·2 gramme. The average output of uric acid for all these 18 cases was thus 0·333 gramme, 8 out of 18, or 4/9ths, being above 0·3 gramme.

Comparing the foregoing with the malignant cases on the same diet, 10 in number, in which altogether 11 estimations were made, 2 were above 0·6 gramme, none between 0·5 and 0·6 gramme, 3 between 0·4 and 0·5 gramme, 3 between 0·3 and 0·4 gramme, 3 between 0·2 and 0·3 gramme, and none below 0·2 gramme. The average of the 10 cases was thus 0·445 gramme, and while in the non-malignant cases we found only 8 out of 18, or 4/9ths of the cases, with an output of uric acid above 0·3 gramme, in the malignant cases 8 out of 10, or 4/5ths, show an output above 0. 3 gramme. Also, while the average output of the 18 non-malignant cases is 0·333 gramme, that of the malignant cases is 0·445 gramme.

Turning now to the cases on a more or less fluid diet, in the 4 non-malignant cases 5 estimations were made. Of these 1 is between 0·3 and 0·4 gramme, 2 are between 0·2 and 0·3 gramme, and 2 between 0·1 and 0·2 gramme, the average output being 0·224 gramme of uric acid per day, only 1/5th being above 0·3 gramme.

In the 6 malignant cases on a similar diet the uric acid excretion is in 1 case between 0·6 and 0·7 gramme, in 1 between 0·5 and 0·6 gramme, in 1 between 0·4 and 0·5 gramme, in 2 cases between 0·3 and 0·4 gramme, and in 1 case between 0·1 and 0·2 gramme. The average of the 6 cases is thus 0·383 gramme, as compared with 0·224 gramme in the non-malignant cases; and whereas in the non-malignant cases only 1/5th shows an output above 0·3 gramme in the malignant cases no less than 5/6ths exceed this amount.

The figures just quoted show clearly that in malignant disease the output of uric acid is greater than in ordinary hospital patients under similar conditions.

Let us now turn to the phosphates. Of the 18 non-malignant cases on common diet 1 shows a phosphate excretion of just above 3 grammes, 7 show excretions of between 2 and 3 grammes, 9 between 1 and 2 grammes, and 1 below 1 gramme. The average excretion for the 18 cases is thus 1·78 grammes, and 17 out of the 18 have an output above 1 gramme.

The malignant cases, 10 in number, on a similar diet show the following results, 11 estimations being made. No case shows a phosphate output above 2 grammes, 5 cases are between 1 and 2 grammes, and 6 are below 1 gramme. The average of the 11 estimations of the 10 cases is thus 1·07 grammes, 6 out of 11 having an output below 1 gramme.

In those patients on an almost entirely fluid diet five estimations were made on 4 non-malignant cases, the result being that 1 case showed a phosphate output above 2 grammes and 4 cases a phosphate output of between 1 and 2 grammes, the average of the five estimations of the 4 cases being 1·734 grammes, all showing an excretion above 1 gramme.

Of the 6 malignant cases on a similar diet, 2 were between 1 and 2 grammes, and 4 were below 1 gramme, the average excretion of the 6 cases being 0·993 gramme, 2/3rds showing an excretion less than 1 gramme.

These figures show definitely that the excretion of phosphates is decreased in patients suffering from malignant disease as compared with ordinary hospital patients on the same diet.

Let us now consider the ratios of $\frac{\text{phosphates}}{\text{uric acid}}$ in the 18 non-malignant cases on a common diet. 1 shows a ratio of

[1] Medical Chronicle, August and September, 1909.

SERIES A.

Malignant and Non-malignant Cases Examined Once.

Case.	Age.	Sex.	Urine.	Uric acid.	Phosphates.	Ratio.*	Disease.	Diet.
			c.c.	gramme.	grammes.			
1 (a)	46	M.	1700	0·398	0·884	2·22	Carcinoma pylori.	Common diet.
1 (b)			1110	0·274	1·08	3·94	After operation.	,,
2	48	F.	480	0·304	0·87	2·85	Scirrhus of the breast (after operation).	,,
3	—	M.	1000	0·277	1·65	5·95	Amyotrophic lateral sclerosis.	,,
4	23	M.	1060	0·391	2·12	5·42	Hernia.	,,
5	—	M.	1080	0·255	1·7	6·66	Fracture of the tibia and fibula.	,,
6	34	M.	1790	0·256	2·5	9·76	,, ,,	,,
7	31	M.	880	0·274	1·21	4·41	Hernia (after operation).	,,
8	22	M.	1470	0·366	2·1	5·73	Varix (after operation).	,,
9	20	F.	870	0·541	2·44	4·51	Fracture of the os calcis.	,,
10	—	M.	560	0·180	1·053	5·84	Hernia.	,,
11	—	M.	1200	0·434	2·232	5·14	,,	,,
12	15	M.	690	0·254	1·518	5·97	Genu valgum.	,,
13	—	F.	790	0·603	1·706	2·83	Scirrhus of the breast (after operation).	,,
14	—	F.	800	0·258	1·18	4·57	Right inguinal hernia.	,,
15	—	F.	740	0·233	1·203	5·16	Double inguinal hernia.	,,
16	—	F.	1200	0·528	3·024	5·73	Disseminated sclerosis.	,,
17	—	F.	510	0·192	0·714	3·72	,, ,,	,,
18	60	M.	1110	0·148	0·976	6·6	Epithelioma of the tongue (after operation).	Milk, 6 pints; 2 eggs; beef-tea, 1 pint.
19	16	M.	880	0·256	0·986	3·81	Sarcoma of the naso-pharynx (after operation).	Milk, 3 pints; bread; beef-tea, 1 pint.
20	—	F.	740	0·255	1·362	5·34	Gastric ulcer.	Milk, 4 pints.
21	35	F.	1020	0·302	1·938	6·42	,,	Fish; B and B†; milk and milk pudding.
22	36	M.	1760	0·194	1·619	8·3	,,	Milk and custard.
23 (a)	42	M.	1360	0·155	2·176	14·0	? Abdominal carcinoma.	Milk.
23 (b)			1160	0·214	1·577	7·37	(Found none malignant.)	Milk; fish; beef-tea.
24	35	M.	900	0·556	2·286	4·1	Gastric ulcer (after operation).	Common diet.
25	18	F.	750	0·213	1·065	5·0	Neurasthenia.	,,
26	—	F.	1200	0·319	1·584	4·96	Fracture of the fibula.	,,
27	—	M.	900	0·473	2·52	5·33	Goitre.	,,
28	57	M.	1050	0·402	1·591	3·96	Epithelioma of the pharynx.	,,
29	73	F.	570	0·479	0·741	1·54	Scirrhus of the breast.	,,
30	37	M.	1780	0·415	1·468	3·54	Epithelioma of the tongue.	Milk and milk pudding; soup; egg.
31	40	M.	1170	0·570	0·679	1·19	Rodent ulcer of the face.	,,
32	58	M.	680	0·291	0·639	2·19	Epithelioma of the palate.	,,
33	48	M.	1400	0·478	1·134	2·37	Epithelioma of the floor of the mouth.	Common diet.
34	63	F.	1160	0·235	0·47	2·0	Scirrhus of the breast.	,,
35	55	F.	1300	0·283	0·169	0·597	Carcinoma uteri.	,,
36	45	M.	1570	0·659	1·24	1·88	Carcinoma of the stomach.	,,
37	46	F.	1130	0·335	0·821	2·45	Scirrhus of the breast.	,,
38	45	M.	1200	0·621	1·214	1·94	Carcinoma of the œsophagus.	Tea, 2 ounces; milk, 2 pints.
							Normal Cases.	
1	—	M.	1000	0·277	2·12	5·95	Amyotrophic lateral sclerosis.	Common diet.
2	23	M.	1060	0·391	1·65	5·42	Hernia.	,,
3	34	M.	1790	0·256	2·5	9·76	Fracture of the tibia and fibula.	,,
4	—	M.	1080	0·255	1·7	6·66	,, ,,	,,
5	31	M.	880	0·274	1·21	4·41	Hernia (after operation).	,,
6	22	M.	1470	0·366	2·1	5·73	Varix.	,,
7	20	F.	870	0·541	2·44	4·51	Fracture of the os calcis.	,,
8	—	M.	560	0·180	1·053	5·84	Hernia.	,,
9	—	M.	1200	0·434	2·232	5·14	,,	,,
10	15	M.	690	0·254	1·518	5·97	Genu valgum.	,,
11	—	F.	800	0·258	1·18	4·57	Hernia.	,,
12	—	F.	740	0·233	1·203	5·16	,,	,,
13	—	F.	1200	0·528	3·024	5·73	Disseminated sclerosis.	,,
14	—	F.	510	0·192	0·741	3·72	,, ,,	,,
15	35	M.	900	0·556	2·286	4·1	Gastric ulcer.	,,
16	18	F.	750	0·213	1·065	5·0	Neurasthenia.	,,
17	—	F.	1200	0·319	1·584	4·96	Fracture of the tibia and fibula.	,,
18	—	M.	900	0·473	2·52	5·33	Goitre.	,,
Average of 18 cases ...				0·333	1·780	5·432		

* Equals phosphates divided by uric acid.

† B and B=Bread and butter.

SERIES A (*continued*).

Normal Cases on Diets containing Small Quantities of Purin and Larger Quantities of Phosphates, chiefly Fluids.

Case.	Age.	Sex.	Urine.	Uric acid.	Phosphates.	Ratio.*	Disease.	Diet.
			c.c.	gramme.	grammes.			
19	—	F.	740	0·255	1·362	5·34	Gastric ulcer.	Milk, 4 pints.
20	35	F.	1020	0·302	1·938	6·42	,,	Milk, 1 pint; milk pudding; fish; B & B.
21	36	M.	1760	0·194	1·619	8·3	,,	Milk, 4 pints; custard; milk and custard diet for several weeks previous to estimation.
22 (a)	42	M.	1360	0·155	2·176	14·0	,,	Milk, 6 pints; milk diet for five weeks prior to estimation.
22 (b)			1160	0·214	1·577	7·37	,,	Milk, 1 pint; fish; beef-tea, for 14 days previous to second estimation.
Average of 4 cases ...				0·224	1·734	7·70		
					Malignant Cases.			
1 (a)	46	M.	1700	0·398	0·884	2·22	Carcinoma pylori.	Common diet.
1 (b)			1110	0·274	1·08	3·94	Same after operation.	
2	48	F.	480	0·304	0·870	2·85	Scirrhus of the breast.	
3	—	F.	790	0·603	1·706	2·83	,, ,,	,,
4	57	M.	1050	0·402	1·591	3·96	Epithelioma of the pharyn .	,,
5	73	F.	570	0·479	0·741	1·54	Scirrhus of the breast.	,,
6	48	M.	1400	0·478	1·134	2·37	Epithelioma of the floor of the month.	,,
7	63	F.	1160	0·235	0·47	2·0	Scirrhus of the breast.	,,
8	55	F.	1300	0·283	0·169	0·597	Carcinoma uteri.	,,
9	45	M.	1570	0·659	1·24	1·88	Carcinoma of the stomach.	,,
10	46	F.	1130	0·335	0·821	2·45	Scirrhus of the breast.	,,
Average of 10 cases ...				0·445	1·070	2·40		
					Malignant Cases on Diets containing Small Quantities of Purin and Larger Quantities of Phosphates, chiefly Fluids.			
11	60	M.	1110	0·148	0·976	6·6	Epithelioma of the tongue (after operation).	Milk, 6 pints; beef-tea, 1 pint; eggs, 2.
12	16	M.	890	0·256	0·986	3·81	Sarcoma of the naso-pharynx.	Milk, 3 pints; beef-tea, 1 pint; bread.
13	37	M.	1780	0·415	1·468	3·54	Epithelioma of the tongue.	Milk, 2½ pints; milk pudding; soup 1 pint; egg; cocoa.
14	40	M.	1170	0·570	0·679	1·19	Rodent ulcer of the face.	Milk, 1 pint; soup, 1 pint; egg; milk pudding.
15	58	M.	680	0·291	0·639	2·19	Epithelioma of the palate.	Milk, 1 pint; soup, 1 pint; egg; milk pudding.
16	45	M.	1200	0·621	1·214	1·94	Epithelioma of the œsophagus.	Tea, 2 ounces; milk, 2 pints.
Average of 6 cases ...				0·383	0·993	2·6		
					Blood Diseases.			
1	—	F.	800	0·271	0·692	2·55	Cyanosis; hæmoglobinæmia.	Common diet.
2	35	F.	630	0·490	0·919	1·87	Spleno-medullary leucocythæmia.	,,
Average of 2 cases ...				0·380	0·805	2·21		

* Equals phosphates divided by uric acid.

† B & B = Bread and butter.

9·76, 1 a ratio above 6, 10 are between 5 and 6, 5 between 4 and 5, and 1 is between 3 and 4. The average ratio for the 18 cases is 5·432, and of these 17 out of 18 show ratios above 4, while all are above 3.

In the 10 malignant cases also on common diet, where 11 estimations were made, 2 showed a ratio between 3 and 4, 6 between 2 and 3, 2 between 1 and 2, and 1 below 1. The average ratio is thus 2·4, and of the 11 estimations all show a ratio below 4, only 2 of the 11 being above 3.

Turning now to the cases on an almost fluid diet; of the 5 estimations made in 4 non-malignant cases, 1 shows a ratio of 14, 1 a ratio above 8, 1 a ratio between 7 and 8, 1 between 6 and 7, and 1 between 5 and 6. The average of the 5 estimations is 8·286, and of the 4 cases none shows a ratio less than 5.

Of the 6 malignant cases on a similar diet, in 1 the ratio is above 6, in 2 it is between 3 and 4, in 1 it is between 2 and 3, and in 2 between 1 and 2. The average of the 6 cases is 2·6; only 1 case has a ratio above 4 and only 3 out of 6 a ratio above 3.

Finally, let us consider the cases of malignant disease estimated a number of times in the course of the illness; in these the diet varied somewhat from time to time, as we have seen above. The following results are found:—

Case.	Average uric acid.	Average phosphates.	Average ratio.	No. of estimations.
I.B	0·466 gramme.	0·659 gramme.	1·41	10
II.B	0·266 ,,	0·782 ,,	2·94	5
III.B	0·341 ,,	1·157 grammes.	3·40	7
IV.B	0·322 ,,	0·728 gramme.	2·26	2
V.B	0·416 ,,	0·658 ,,	1·58	7
VI.B	0·446 ,,	0·999 ,,	2·01	2
VII.B	0·340 ,,	0·501 ,,	1·47	3
VIII.B	0·380 ,,	1·083 grammes.	2·85	2
IX.B	0·260 ,,	0·752 gramme.	2·90	2

Average of 9 cases in which 40 estimations were made: Uric acid, 0·359 gramme; phosphates, 0·813 gramme; $\frac{\text{phosphates}}{\text{uric acid}}$ ratio, 2·26. Hence out of the 40 estimations

SERIES B.

Malignant Cases Examined at Intervals during the Course of the Disease.

No.	Age.	Sex.	Urine.	Uric acid.	Phosphates.	Ratio.*	Disease.	Diet.
			c.c.	gramme.	grammes.			
I.B 1	64	F.	1500	0·433	0·857	1·98	Scirrhus of the breast.	(1) † Tea, B & B,‡ bacon; (2) 1 pt. beef-tea, 4 oz. bread, milk pudding; (3) tea, B & B, egg; (4) ½ pt. milk.
2			1150	0·397	0·931	2·35		(1) Cocoa, B & B, ham; (2) 8oz. milk; (3) 1½ oz. beef, potatoes, cabbage, milk pudding, fruit; (4) tea, B & B, egg; (5) ½ pt. milk.
3			1430	0·381	0·908	2·38		Ditto.
4			860	0·607	1·061	1·75		Ditto.
5			800	0·24	0·5	2·08		Ditto.
6			1300	0·468	0·741	1·58		Ditto + 1½ oz. wine.
7			1150	0·504	0·701	1·39		Ditto.
8			1110	0·25	0·255	1·02		(1) Tea, B. & B, bacon; (2) 8 oz. milk; (3) 1 pt. soup, bread, milk pudding; (4) tea, B & B, egg; (5) ½ pt. milk, 1½ oz. wine.
9			520	0·483	0·318	0·66		(1) Tea, B & B, ham; (2) ½ pt. milk; (3) 5 oz. soup, bread, milk pudding; (4) tea, B & B; (5) ½ pt. milk, 2 oz. wine.
10			1390	0·902	0·319	0·35		(1) Tea, toast; (2) ½ pt. milk; (3) 6 oz. soup, bread; (4) tea, B & B; (5) 5 oz. milk, 2 oz. wine.
II.B 1	64	F.	1130	0·345	1·492	4·32	Carcinoma of the rectum.	(1) Tea, B & B, bacon; (2) meat, potatoes, cabbage, milk pudding; (3) tea, B & B, egg; (4) 8 oz. soup.
2			1010	0·239	0·828	3·46		Ditto.
3			1000	0·187	0·41	2·19		(1) Tea, B & B, ham; (2) 1 oz. meat, potatoes, cabbage, milk pudding, stewed fruit; (3) tea, B & B, egg; (4) 6 oz. soup.
4			1000	0·262	0·59	2·25		Ditto.
5			1020	0·298	0·591	1·98		Ditto.
III.B 1	38	F.	990	0·371	1·164	3·14	Scirrhus of the breast.	(1) Tea, B & B, bacon; (2) fish, potatoes, milk pudding; (3) tea, B & B, egg; (4) bread and milk.
2			820	0·269	1·23	4·57		(1) Cocoa, B & B, egg; (2) ½ pt. milk; (3) 2½ oz. mutton, potatoes, milk pudding; (4) tea, B & B, jam; (5) ½ pt. milk.
3			1520	0·308	1 011	3 28		Same as (1).
4			1180	0·265	1·309	4 94		(1) Tea, B & B, ham; (2) meat, potatoes, milk pudding; (3) tea, B & B, egg; (4) 6 oz. soup.
5			1650	0·557	1·441	2·59		(1) Tea, B & B, marmalade; (2) vegetables, milk pudding; (3) tea, B & B, egg; (4) 6 oz. of soup.
6			1150	0·345	1.104	3·20		Ditto.
7			1450	0·272	0·841	3·09		(1) Tea, B & B, fish; (2) 5 oz. milk; (3) 2½ oz. mutton, potatoes, cabbage; (4) tea, B & B, egg; (5) 6 oz. soup.
IV.B 1	59	M.	730	0·490	0·755	1·54	Epithelioma menti.	(1) Cocoa, B & B, egg; (2) milk; (3) 2½ oz. mutton, potatoes; (4) cocoa, B & B, jam; (5) milk.
2			1430	0·155	0·702	4·53		Ditto.
V.B 1	60	M.	890	0·504	1·023	2·03	Rodent ulcer of the face.	(1) Tea, B & B, egg; (2) 10 oz. milk; (3) 1 pt. soup, bread, milk pudding; (4) tea, B & B, jam; (5) ½ pt. milk.
2			940	0·208	0·818	3·93		Ditto.
3			900	0·348	0·598	1·72		Ditto.
4			1100	0·463	0·836	1·80		Ditto.
5			950	0·413	0·546	1·32		(1) Tea, B & B; (2) ½ pt. milk; (3) milk pudding; (4) tea, B & B; (5) ½ pt. milk.
6			350	0·394	0·433	1·1		Ditto.
7			450	0·584	0·354	0·61		Ditto.
VI.B 1	70	M.	460	0·375	1·249	3·33	Carcinoma of the colon.	(1) Tea, B & B; (2) ½ pt. milk; (3) ½ pt. soup, bread, milk pudding; (4) tea, B & B; (5) ½ pt. milk.
2			750	0·517	0·75	1·45		(1) Tea, toast; (2) 6 oz. milk; (3) minced meat, potatoes, milk pudding; (4) tea and toast; (5) 6 oz. milk.
VII.B 1	77	M.	530	0·298	0·669	2·24	Epithelioma of the scrotum.	(1) Tea, B & B, egg; (2) ½ pt. milk; (3) 5 oz. soup, bread, milk pudding; (4) tea, B & B; (5) ½ pt. milk.
2			780	0·424	1·23	2·9		Ditto.
3			400	0·3	0·605	2·02		Ditto.
VIII.B 1	46	F.	1060	0·378	1·288	3·41	Scirrhus of the breast.	(1) Tea, B & B, bacon; (2) 8 oz. milk; (3) meat, potatoes, cabbage, milk pudding; (4) tea, B & B, jam; (5) bread and milk.
2			510	0·382	0·879	2·3		Ditto.
IX.B 1	71	M.	510	0·323	0·939	2·91	Epithelioma of the tongue.	(1) 8 oz. milk and cornflour; (2) 2 oz. milk; (3) 5 oz. soup, bread, milk pudding; (4) tea, B & B; (5) 1 oz. whiskey.
2			290	0·197	0·565	2·86		Ditto.
X.B 1	—	M.	1700	0·669	3·162	4·75	*Nil.*	(1) Ham and eggs, B & B, coffee; (3) soup, meat, potatoes and vegetables, stewed fruit; (4) tea, B & B; (5) bread and cheese.
2			1790	0·724	3·347	4·63		Ditto.
3			870	0·822	2·74	3·33		Ditto.
4			1900	0·463	2·755	5·95		Ditto.
5			1550	0·587	2·836	4·83		Ditto.
6			1600	0·576	3·152	5·47		Ditto.

* Equals phosphates divided by uric acid.

† (1) = Breakfast; (2) = lunch; (3) = dinner; (4) = tea; (5) = supper.

‡ B & B = Bread and butter.

we obtain the following results. The output of uric acid per day is in 1 case above 0·9 gramme, in 1 between 0·6 and 0·7, in 5 cases between 0·5 and 0·6, in 7 between 0·4 and 0·5, in 13 between 0·3 and 0·4, in 10 between 0·2 and 0·3, and in 3 between 0·1 and 0·2 gramme. Thus the uric acid output exceeds 0·3 gramme in 27 out of 40 estimations—i.e., more than 5/8ths of the observations. The daily output of phosphates is in no case above 2 grammes, in 12 cases it is between 1 and 2 grammes, in 22 between 0·5 and 1 gramme, and in 6 it is under 0·5 gramme—i.e., the phosphate excretion is below 1 gramme per diem in 28 out of 40 cases, or 7/10ths of the estimations. The ratio of $\frac{\text{phosphates}}{\text{uric acid}}$ is in no case above 5, in 4 cases it is between 4 and 5, in 8 between 3 and 4, in 13 between 2 and 3, in 12 between 1 and 2, and in 3 below 1—i.e., the ratio is below 4 in 36 out of 40 cases, or 9/10ths of the estimations.

Thus the figures show very conclusively the following points. 1. That the uric acid output in malignant disease is greater than in ordinary hospital patients under similar conditions and taking the same diet. 2. That the phosphate excretion is much lower in malignant than in non-malignant patients under corresponding conditions and taking the same diet, and that it falls with the advance of the disease. 3. That the resulting ratio of $\frac{\text{phosphates}}{\text{uric acid}}$ is much lower in malignant cases than in the corresponding controls done in non-malignant patients. Also that this ratio falls throughout the course of the disease, as shown by the B series of cases where several estimations were made at longer or shorter intervals during the progress of the disease. 4. That these conditions are largely, though not absolutely, independent of the particular form of diet, the same changes being noted in malignant patients on any diet as compared with ordinary hospital patients on a similar diet. With diets consisting largely of milk, however, and of little or no meat, lower uric acid figures, often higher phosphates, and in most cases higher ratios are given in malignant and non-malignant patients, than would be the case if the patient were on "common diet."

Case XB of Series B is appended for the sake of comparison. It represents the uric acid and phosphate outputs and the corresponding $\frac{\text{phosphates}}{\text{uric acid}}$ ratios in a healthy individual on a normal diet, 6 estimations being made at intervals. It will be noticed that the phosphates do not show the constant tendency to fall, so marked in the malignant cases, and also that the $\frac{\text{phosphates}}{\text{uric acid}}$ ratio on the whole maintains a high level, being above 4 in every case but one.

What explanation can we give for these results? It would be expected, since in patients who have cancer there is generally a tumour mass undergoing disintegration and a progressive emaciation of the body tissues, that the excretion of uric acid and phosphates would be increased in amount. Now the uric acid behaves as we should expect it would—the excretion is proportionately high but the phosphates are very low. How can this be accounted for? The phosphoric acid of the urine comes from three sources: (*a*) from the nucleo-proteids of the food and tissues, (*b*) from the phosphates taken in with the food, and (*c*) from the phosphorised fats in the body. There are two distinct sources of the uric acid of the urine: there is the exogenous moiety which arises from the purins and nucleo-proteids of the food, and an endogenous moiety which is the result of the breakdown of nucleo-proteids in the tissues. Hence the uric acid and phosphates come largely from the same source, and we should expect their excretion to run more or less parallel. Therefore, if the uric acid be excreted in proportionately high amounts, and if this be not the result of an excessive intake of exogenous purins, we must infer that the phosphates are also being formed in correspondingly increased quantities, and we must search for their ultimate destination, since they are excreted in such small amounts.

I have suggested that the phosphates are possibly retained in the tissue fluids to some extent, and a little consideration will show that there is evidence to support this in the facts above mentioned. It is probable, however, that only a small percentage of the whole amount retained is in the tissue fluids. Thus, having found that the ratio of $\frac{\text{phosphates}}{\text{uric acid}}$ is low in cancer and progressively diminishes as the disease runs its course, also that the uric acid is often of normal amount or even above normal in cases of malignant disease, the phosphates being very low and decreasing as the case progresses, it occurred to me that these three data might be of great value as an aid to diagnosis in suspected cases of malignant disease. The estimations are not difficult to perform, the methods are reliable, and these facts, added to the clinical history and possibly the evidence that hydrochloric acid is absent from the gastric juice, would give, in my opinion, a very reliable test as to the presence or absence of malignant disease.

The question of diet, it is true, introduces some difficulty. Thus a patient taking a purely milk diet is consuming a large quantity of inorganic phosphates in the form of calcium phosphate, as well as some organic phosphates, while he is absorbing no purin, since milk is practically purin-free. This causes the uric acid to be much lower, for when a purin-free diet is taken for some time the exogenous purins are gradually drained out of the system, and the uric acid is thus practically entirely from endogenous sources. The output of phosphates, on the other hand, is derived from both exogenous and endogenous sources, since a considerable quantity is being ingested in the milk diet. For these reasons the ratio of $\frac{\text{phosphates}}{\text{uric acid}}$ tends to rise much higher in patients on a milk diet than in those on common diet. But if we compare the malignant cases on a fluid diet with non-malignant patients on a similar diet, we immediately find that the ratio is much lower in the malignant cases. Thus in Case 23*a* of the non-malignant cases, Series A, the ratio is 14, since the patient was on a purin-free diet. In Case 11 of the malignant cases in the same series, also on an almost purin-free diet (except for the beef-tea), it is 6·6. Case 23*b* of the non-malignant series shows the fall after reducing the quantity of milk greatly and adding fish and beef-tea. Thus we can correct for the diet by introducing other substances such as fish where possible and cutting down the milk correspondingly. But this is not all, for we can often form a fairly accurate estimate in such cases where there is a high uric acid figure on a purin-free diet. Thus Cases 13, 14, and 16 of the malignant series would lead us to a diagnosis of malignancy from their high uric acid figures alone, since they are taking very little purin, and the large output of uric acid must there be chiefly derived from endogenous sources, and therefore indicates increased nucleo-proteid metabolism. The excretion of the phosphates often helps also in the diagnosis even in cases where the ratio appears unduly high for a malignant case. Thus Case 11 of malignant cases, Series A, shows a high ratio (6·6), yet the phosphatic excretion is only 0·976 gramme. Now by comparison with the non-malignant cases on a fluid diet we see immediately that this figure is very low, the lowest figure in the 4 non-malignant cases being 1·36 (in Case 19). Thus I wish to emphasise that in examining cases with a view to diagnosis one must consider not only the resultant $\frac{\text{phosphates}}{\text{uric acid}}$ ratio, but also the actual amounts of uric acid and phosphates excreted. The diet must be carefully considered, and where possible the effects of a change of diet on the composition of the urine taken into account.

Another difficulty is illustrated by referring to the two cases given under the head of blood diseases. Here we see results closely resembling, if not identical with, those found in malignant disease. This suggests the possibility of these results being due in some way to the anæmia accompanying cancer. Against this, however, is the fact that one gets typical results of the kind mentioned even in cases which, so far as one can judge, are early. The whole question of their relation to the anæmias requires working out thoroughly, as it may be that there is some common factor underlying both diseases. Cases 21 and 22 of Series A of the non-malignant cases give two instances where the diagnosis was made purely from the urine without having seen the case. Both were diagnosed as non-malignant by this method, while the clinical diagnosis was malignant for Case 21 and gastric ulcer for Case 22. Case 22 was operated on and proved to be a case of gastric ulcer as diagnosed. Case 21 was not operated on, but the diagnosis of malignancy was later

abandoned owing to the great improvement of the patient under treatment, no relapse occurring after three or four months in hospital.

Summary.—From the results obtained and the figures quoted it appears to me that an examination of the urine will prove of great value as an aid to diagnosis in obscure cases of cancer, especially in cancer of the alimentary canal and abdominal organs, which is often difficult to distinguish from such diseases as gastric ulcer, tubercle, gall-stones, &c. In order to apply this test it is necessary to estimate the uric acid and phosphate content of the urine, and to consider the figures separately and then take into account the $\frac{\text{phosphates}}{\text{uric acid}}$ ratio.

The figures quoted have, I consider, established the following facts:—1. That in cases of cancer the uric acid is usually higher than is found in healthy cases under similar conditions. 2. That the output of phosphates in the urine is in the majority of cases of cancer decreased when compared with healthy individuals. 3. That the ratio of $\frac{\text{phosphates}}{\text{uric acid}}$ is almost invariably reduced in malignant disease below that found in health, any ratio below 4 being suggestive, especially if it remains low on several occasions, and any ratio below 3 is almost diagnostic of malignant disease or a blood disease, unless, indeed, further work shall prove that the same is found in other conditions.

Finally, I wish it to be understood that this paper is in no sense complete, and is only intended as a preliminary paper. The cases examined point to the conclusions quoted above, but before the value of these facts in diagnosis can be clearly established it will be necessary to determine how far they are true of other forms of cachexia and what their relation may be to the secondary anæmia usually present in malignant disease. I am at present engaged in working out this question, and I hope to publish further details at a later date. Further particulars of many of the facts on which the present paper is based may be found in the article alluded to in footnote 1.

Part of the above work was done in the cancer laboratory of the Manchester Royal Infirmary, owing to the kind permission of the board, and the expenses were partly defrayed by the Cancer Research Fund of that institution.

Wigan.

ON OCCLUDING AND SUBOCCLUDING LIGATURES.

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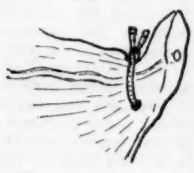
THE application of a ligature in the course of a surgical operation produces in the tissue distal to it a condition of artificial infarction which, like that occurring spontaneously, may be either white or red, depending upon the method of ligature employed. Ligatures, from this point of view, may be divided into two classes. *Occluding ligatures* when every blood channel leading to the distal tissue is included in the ligature (Fig. 1); and *suboccluding ligatures* where, though the main blood-supply is obstructed, yet a tract of tissue capable of establishing capillary anastomosis beyond the ligature is left unincluded in it (Fig. 2).

FIG. 1.

An occluding ligature.

FIG. 2.



A suboccluding ligature.

The distal tissue in the first case is in a true condition of white infarction, being rendered permanently bloodless so long as the ligature holds, and it rapidly undergoes anæmic necrobiosis.

The processes that ensue in the second case can be watched where a suboccluding ligature has been applied in the early stage of a prolonged operation, such as the radical abdominal operation for carcinoma of the cervix after the method of Wertheim, and it is from observations whilst performing this operation that the subject of this paper was first suggested to me.

The first step in the technique of this operation is the application of a ligature round the ovarico-pelvic ligament with its contained ovarian vessels, which is then divided on the uterine side of the ligature. The tissue distal to the ligature as ordinarily applied is obviously suboccluded, but is for the first half-hour or more entirely bloodless. After this period it gradually becomes pink, and at the end of an hour or an hour and a half is deep red or purple and frequently oozing dark-coloured blood, suggesting at first that the ligature is becoming loose. Examination, however, shows that this is not the case, but that the condition is due to the production of an artificial red infarction by establishment of capillary anastomosis through the narrow strip of peritoneum unincluded in the ligature. (Figs. 3 and 4.)

FIG. 3.

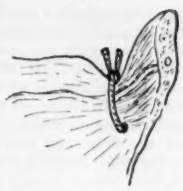


FIG. 4.

The production of an artificial red infarction.

The Differences in Behaviour of White and Red Infarcted Tissue.

The area of a white infarct dead of anæmic necrobiosis and cut off from all vascular communication with the surrounding tissues is singularly non-irritant to the structures in juxtaposition to it, provided that no septic processes have been concerned with its production. Its condition is analogous to that of a sterile foreign body, such as a sequestered extra-uterine fœtus or piece of tissue experimentally implanted. The length of time for which an extra-uterine fœtus in a state of fatty degeneration may remain in the abdomen without giving rise to inflammatory symptoms is well known.

As regards experimental implantations comparison may be drawn with the effects produced by inserting pieces of human carcinoma into the peritoneal cavity of rabbits and guinea-pigs under aseptic precautions. No inflammatory phenomena are excited, and if the implantation be examined six months after its insertion it is found to be surrounded by soft red adhesions strictly limited to its periphery which microscopically show an outer layer of large mononuclear connective tissue cells and an inner layer of multinuclear, almost syncytial giant cells actively invading and destroying it [1]

The same processes occur round areas of white infarction naturally or artificially produced unless so small that vascularisation by adhesions can occur throughout the whole mass before the cells have time to die.

The avascular necrobiotic tissue of a white infarct, then, has very little irritative or chemiotactic properties. Should infection occur inflammatory reaction cannot take place in it, because it contains no living cellular elements, whilst the obstruction that is present at its proximal boundary (embolus, thrombus, or ligature) prevents absorption of bacterial products into the tissues beyond and the general circulation. The process, therefore, is apt to be mild and localised.

The adage that it takes two to make a quarrel may, in this connexion, be adopted to the form that it takes two to form a firm adhesion. As an extreme example may be cited the condition found when a sponge or gauze swab is recovered after long residence in the peritoneum. If no suppuration has occurred it is surrounded by soft vascular adhesions, the cells of which can be shown to have permeated some way into the superficial layers of the porous surface of the foreign body. But the adhesions are very fragile.

[1] Victor Bonney: "The Connective Tissue Changes in Carcinoma," Hunterian Lectures, Royal College of Surgeons of England, and THE LANCET, vol. i., 1908, pp. 1389, 1465, 1535.

It occasionally happens that the surgeon is called upon to remove an ovarian cyst many months or a year or two after extreme torsion of its pedicle. The cyst wall is found completely necrotic and surrounded by soft adhesions, from which it is without the slightest difficulty shelled out. The same phenomenon is seen in sequestered abdominal gestation. The feebleness of the adhesions in such cases is in striking contrast to those met with after, say, salpingitis or appendicitis of only a few weeks' standing. The difference is due to the fact that in the first case cell activity is limited to one adhering surface only, whilst in the other both take part in it.

In red infarction the conditions are very different. The tissue is damaged but not killed, and as the blood leaks into the involved area by capillary anastomosis the partially devitalised vessels passively distend and presently rupture, so that the intervascular stroma becomes infiltrated with blood and the whole mass assumes a purple red colour. Enormous quantities of blood may be lost in this manner, as, for instance, the hæmoptysis of pulmonary embolism, the hæmaturia associated with some renal infarcts, and the profuse intestinal bleeding that results from mesenteric embolism or thrombosis.

Though not produced in the same manner, a similar condition of things is brought about in states of partial strangulation in which the blood-supply is interfered with, but not entirely obstructed, such as the parts distal to a volvulus, the contents of a strangulated hernia, or an ovarian cyst or other tumour that has undergone axial rotation. In either set of cases the partially devitalised blood-sodden tissues distal to the embolus, thrombus, constriction, or twist act as a powerful irritant strongly incentive to bacterial invasion and growth.

The irritant properties of blood in the wrong place—i.e., outside the vessels—are well known, as, for example, the rapidity with which peritonitis is set up round a hæmatocele, and the acute arthritis produced by effusion of blood into a joint. Effused blood, besides being a tissue irritant, is chemiotactic towards bacteria; thus Dudgeon and Sargent have shown that its presence in the peritoneal cavity is soon followed by the appearance of bacteria there. It would appear, therefore, that the peculiar liability of red infarction to set up inflammation is due, in the main, to the abnormal distribution of the blood in its area.

Inflammation occurring, the cells of the infarct itself partake in it, and being already damaged suppuration or inflammatory necrosis is common. Unlike a white infarction, potential channels remain open for the conveyance of toxins or bacteria to the tissues beyond and the general circulation. The symptoms and results of such inflammation are therefore apt to be severe, whilst under circumstances of recovery firm adhesions are formed.

As actual examples of the different behaviour of areas of white and red infarction the following may be cited. Persons dying from cardiac disease often exhibit numerous white infarcts in the spleen or kidneys, the occurrence of which was entirely unsuspected and marked by no symptoms. The organ in which they are situated is not necessarily abnormal in any other respect, and the microscope reveals healthy tissue right up to the edge of the infarct.

The occurrence of red infarction, on the other hand, is associated with marked symptoms. Thus in the lung it gives rise to hæmoptysis and pleurisy, often followed by pneumonia; in the kidney pain and hæmaturia are produced, whilst in the spleen rapid painful enlargement immediately ensues. On examination of the organ affected it is found to be swollen and congested not only in the area of the actual infarct but throughout its whole neighbourhood, pointing to some irritant effect rapidly extending from the region of primary injury. In this connexion I recall assisting a colleague to operate on a tumour the symptoms and signs of which suggested acute torsion of the spleen. On opening the abdomen it was found to be the spleen in a condition of acute swelling and engorgement due to the occurrence of large red infarct therein. It was removed and the patient made an excellent recovery.

Large masses of omentum are frequently ligatured off during the progress of an abdominal section, the "button" of tissue left distal to the ligature being in a state of white infarction, but no symptoms whatever result from the leaving of this necrobiotic tissue in the peritoneal cavity. This is in striking contrast to the acute symptoms immediately produced if a piece of omentum be partially strangled, as, for instance, in a hernia sac. The difference in the two cases is the difference between the condition of the tissues distal to the seats of strangulation. In the former the strangulation is complete and the infarct white, in the latter it is incomplete and the infarct red.

Two years ago I reopened a case of abdominal section for symptoms resembling intestinal obstruction, and found they were due to collateral capillary circulation having become established round a "mattress" ligature placed on a piece of omentum. The tissues distal to the silk were greatly swollen, hæmorrhagic, and adherent.

The application of an encircling ligature to a portion of the intestinal wall in order to control bleeding there produces no symptoms. In a Richter's hernia, on the other hand, the partial strangulation of a portion of the intestinal wall produces all the symptoms of intestinal obstruction.

Some years ago a case came under my observation in which a surgeon inadvertently placed an encircling ligature round a knuckle of intestine. The blood-supply to the intestine and mesentery distal to the ligature was, of course, entirely cut off and the intestine completely and suddenly obstructed, yet the patient lived for four days, *for the first two of which no symptoms at all were manifested.* She finally died from peritonitis without any of the classical signs of intestinal obstruction. Compare this with the instant symptoms produced by volvulus, intussusception, mesenteric thrombosis, or embolism—all conditions in which the state of the parts distal to the twist, constriction, or occluded vessel is analogous to red infarction.

In the operation of salpingo-oöphorectomy or ovariotomy a considerable bulk of tissue is left distal to the ligature, especially if the older fashioned mass ligature in halves is used and the operation clumsily performed; yet providing that asepsis has been maintained, the retention in the abdomen of a large tissue area presently to undergo anæmic necrobiosis produces no symptoms.

Spontaneous torsion of a uterine appendage or an ovarian cyst, on the other hand, is immediately followed by rapid swelling and blood extravasation into the parts distal to the twist, and the symptoms set up are instant and urgent.

As a last example, one may contrast the different symptoms produced by the absolute strangulation of a pile by surgical ligature and the partial strangulation due to spontaneous "nipping" by the anal sphincter.

The Results of Subocculding Ligatures.

Consideration of these facts shows that an area of complete vascular blockage is much less dangerous than one to which the blood-supply is only partially interfered with, and that a mass of tissue in a condition of red infarction is (1) a source of hæmorrhage; (2) a powerful tissue irritant and an incentive to infection; and, therefore (3) is a potent cause of adhesion. A subocculding ligature, inasmuch as it has been shown to produce artificial red infarction of the area distal to it, is a potential cause of all these.

Hæmorrhage.—I have seen several cases of abdominal section reopened for hæmorrhage in which the ligatures were secure and yet the pedicles were the source of the hæmorrhage. In most of these cases hysterectomy had been performed and the pedicles of the ovarian or round ligaments were those at fault. The cause of the disaster was not recognised at the time in any case, the surgeon regarding the occurrence as something of a mystery.

A patient died some days after an operation for a large abdominal tumour with symptoms of high fever and abdominal swelling. Post mortem a large quantity of blood was found in the peritoneal cavity, which had come from the omentum, the ligatured edge of which was extensively infiltrated, but no evidence of a slipped ligature was forthcoming. The prolonged nature and peculiar character of the symptoms and the post-mortem findings pointed most strongly to the establishment of collateral capillary circulation round a subocculding ligature.

Irritation and infection.—Apart, however, from cases in which the oozing was sufficiently free to produce signs of internal hæmorrhage, I have ascertained knowledge of several in which a mass of blood clot formed round the pedicle and subsequently set up local inflammation there. For instance, in 1909 I removed a very large ovarian cyst. The pedicle was broad and was treated by the application of several ligatures in the manner shown in Fig. 8, and at the time of closing the abdominal wound the hæmostasis appeared absolute. She subsequently developed signs of local pelvic

peritonitis with symptoms of partial intestinal obstruction. I reopened the wound and found a mass of blood clot the size of a Tangerine orange surrounding the pedicle. Around it were considerable pelvic peritonitis and adhesions of intestine and omentum. I particularly examined my ligatures and they were all secure, but the tissue distal to them was deeply infiltrated with blood and in a typical condition of red infarction.

The occurrence of some pain and tenderness, with more or less fever and the formation of a definite lump over the site of a piece of ligatured omentum or the pedicle of an ovarian cyst or diseased uterine appendage, must be within the experience of most surgeons. Such symptoms, though usually attributed to the sterility of the ligature material not being absolute, are really due, I strongly believe, to the method of ligature employed.

Adhesions.—Some year or two ago I reopened for intestinal obstruction a patient from whom a pyosalpinx had been removed some three weeks before. The obstruction was due to the omentum, which was very firmly adherent to the stump of the appendage and had so pulled on the transverse colon as to kink it. The stump was still deeply ecchymosed, and the ligatures, which were secure, were of the subocculding variety.

Cases in which signs of obstruction more or less definite manifest themselves after abdominal operations and subside without the necessity of reopening the wound are not uncommon. A certain proportion are due, I believe, to adhesion of the omentum or bowel to the blood-sodden oozing tissue distal to a subocculding ligature.

Conclusions.

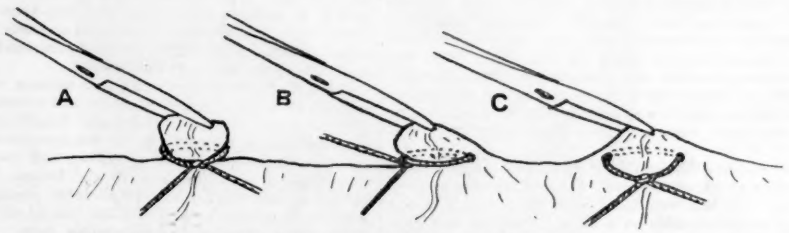
The practical importance of the foregoing remarks, then, is that subocculding ligatures should be avoided. It may be asked why they are employed at all. The reason is that of security. Thus take the various ways of ligaturing a vessel in the cut edge of a mesentery—say that of the tube or appendix. Method A (Fig. 5), an occluding ligature, is quick, but in certain circumstances insecure. Method B, a subocculding ligature, takes longer, but is less likely to slip. Method C, also a subocculding ligature, takes longer still, but is the most secure of all.

This last method, the mattress suture or ligature, is extensively employed in abdomino-pelvic surgery, and is an admirable device both on account of its security and its wide applicability, but it has the disadvantage of only partially occluding the area distal to the ligature. Both Methods B and C can, however, in most cases be converted into occluding ligatures by bringing the ligature back round the hæmostatic forceps and tying it again on the opposite side (Figs. 6 and 7). By this means the advantages of the encircling ligature with its perfect occlusion are combined with the security of the simple transfixion or mattress ligature.

The double transfixion ligature, the classical method of tying the pedicle of an ovarian cyst, is a good example of an occluding ligature; it has, however, the disadvantage of taking a longer time and leaving the puncture hole unsecured. Since the two halves of the pedicle are often straining different ways, this puncture may enlarge and become the source of bleeding. For this reason it has long been the practice both at the Middlesex Hospital and the Chelsea Hospital for Women to reinforce it with a simple encircling ligature tied in the same groove.

In ligaturing a broad pedicle or a large area of omentum two simple transfixion ligatures with intervening mattress ligatures are often employed (Fig. 8). This is not a good method, for, as pointed out, collateral capillary circulation may be established between the mattress ligatures. If it is used at all a simple encircling ligature should be subsequently applied round the whole mass. This, however, may make a very bulky and ugly pedicle, and in such cases the chain ligature is properly employed (Fig. 9).

FIG. 5.



The various ways of ligaturing a vessel in the cut edge of a mesentery. A, An occluding ligature. B and C, Subocculding ligatures.

FIG. 6.

FIG. 7.

Methods of turning subocculding into occluding ligatures.

FIG. 8.

Transfixing ligatures with intervening mattress ligatures.

FIG. 9.

Chain ligatures.

Harley-street, W.

RECOGNITION OF PUBLIC SERVICE.—The Halifax county borough council, at a monthly meeting held recently, agreed to advance the salary of Dr. J. T. Neech, medical officer of health, from £500 to £600 per annum, by annual increments of £50. Dr. Neech has been in the service of the corporation for ten years, and this is the first time he has approached the council for an advance, though his work has considerably increased since the time of his appointment. Alderman Hey, J.P., chairman of the health committee, proposing the resolution, eulogised the work of Dr. Neech, alluding to his business as well as his medical ability. Under his guidance financial saving had been effected, and the general health of the borough had improved.

A CASE OF CONGENITAL SPASTIC HYPERTROPHY OF THE PYLORUS.

BY FREDERIC BARKER, M.B., B.S. LOND., L.R.C.P. LOND., M.R.C.S. ENG.,
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CONGENITAL spastic hypertrophy of the pylorus, or congenital pyloric stenosis, is a disease which has been very fully investigated and written about during the last 15 years. Reviews of the various theories may be found in text-books, while the writings of Miller and Willcox[1] on the gastric ferments and acidity are of much interest. But the publication of occasional cases is perhaps justified on account of the rarity of the condition, and more especially when pathological data are available. The following is the only case which has occurred in nearly three and a half years of busy general practice.

The prospect of recovery, even under the most advantageous circumstances, is not hopeful. Thomson[2] gives 14 recoveries out of 41 (1894–1908), while Still[3] (1909), excluding three observed before the days when special treatment began to be adopted and three lost sight of, gives 19 recoveries out of 36. From his experience he is inclined to think that, if taken in hand early, many, or even a majority, would recover. In the case of poor patients not within easy reach of adequate hospital treatment the disease is probably always fatal.

Clinical Report.—(F. B.)

Family history.—There is nothing remarkable on the father's side. The mother was a healthy primipara aged 24 years; she has a slight stammer, but no other nervous symptom. There is no family history of tubercle or nervous disease. The family is working class and not at all well-to-do. I was present at the birth on Oct. 2nd, 1908, the presentation being the left occipito-anterior. Labour, after full dilatation of the os, was tedious, and under chloroform the head, which was large, was delivered with forceps. The weight of the child two or three days after birth was 9½ pounds.

History of illness.—The child, a male, was healthy until Oct. 26th, when he began to vomit. I saw him at the surgery on the 27th. He had vomited two or three times on the previous day, small amounts at a time. Feeding had been by the breast since birth, but at irregular and too frequent intervals. There was constipation. I advised two-hourly feeds by day and two feeds during the night, and gave pulvis hydrargyri cum cretâ (½ gr.) night and morning. The child looked perfectly healthy. Oct. 29th: The baby was vomiting occasionally, but was looking well. I gave a bismuth and soda mixture, and a grain of calomel at night. Nov. 1st: I saw the child at home. He had manifestly wasted. The mother, without being asked about the vomiting, said that it came up "with a rush" after every feed. Vomiting then occurred from time to time until the next feed. The child was quite quiet. On being lifted from the cradle some partially digested milk was brought up, not very forcibly. He had been fed about two hours previously. Epigastric peristalsis was well marked; it began on the left side of the epigastrium, and passed slowly across the belly and downwards towards the right, ending above and to the right of the umbilicus. I could not be sure that I felt the pylorus, but just for a moment at the close of one of the waves I thought that I did so. (I never could feel it afterwards, the belly-wall on future occasions always being too rigid.) The bowels had acted two days before, following the calomel, but even then the stool was very little. Medicine was taken readily but was always returned. Nothing abnormal was found in the heart and lungs. The urine was said to be more scanty than usual, otherwise micturition was normal.

Nov. 2nd: The stomach was washed out with warm sodium bicarbonate solution (3 grains to the ounce). About 2 ounces of partially digested milk was drawn off. Short feeds every hour were advised. Nov. 3rd: The child had slept much better, only waking once during the night. He vomited fairly frequently. The stomach was washed out with warm bicarbonate solutions (2 grains to the ounce). A good result followed a small simple enema. Epigastric peristalsis was well marked. The temperature was 98·4° F. in the rectum. Nov. 5th: The baby was looking thinner. The stomach was washed out; the bowels were opened with an enema. Nov. 6th: The child had slept better, and had only vomited twice. The stomach was washed out. The weight of the baby was 8½ pounds. Nov. 7th: The stomach was washed out. The boy's hands looked blue. Nov. 8th: The temperature in the rectum was 102·2°. The bowels were not opened. I began giving occasional saline rectal injections. The feeds were to be given every half hour consisting of half an ounce of peptogenised milk-and-water (1 to 2). The child was looking worse. Nov. 9th: The temperature was 98°. The bowels were not opened. Saline per rectum was continued. Nov. 10th: The temperature was 98·2°. The baby vomited two or three times. The bowels were opened once. Nov. 11th: The child vomited three times. The bowels were opened naturally. Nov. 12th: The temperature was 97·8°. The child vomited twice, but very little. The bowels were opened twice naturally, there being nothing remarkable about the stools. The child was not really improving in appearance. Nov. 13th: Vomiting was more frequent. The bowels were opened twice following saline injections. Nov. 14th: The vomiting was worse; the temperature was 98·2°. The baby was put on the following mixture, 1 drachm every four hours: tincture of belladonna, 12 minims; tincture of opium, 2 minims; citrate of potassium, 16 grains; water to 2 ounces. Nov. 15th: Vomiting was frequent. The bowels were opened once naturally. Nov. 16th: There was no vomiting. The baby was sleeping well. He was passing plenty of urine; the bowels had not been opened since yesterday. The pupils were medium and active. He looked rather better. Nov. 19th: The slight improvement was not maintained, and the baby died to-day.

The difficulties of treatment in a cottage, where even the making of whey was looked upon as impossible of accomplishment and where the most trivial details needed constant supervision, can be imagined. I have sometimes thought that under more favourable circumstances this case would have recovered. I was disappointed with lavage, though it had hardly a fair trial, and the dietetic precision which is possible in hospital, and from the results of which we can more safely reason, was impossible here. I wish antispasmodics had been given earlier, though they are not usually very helpful, and citrated milk might have been tried.

Post-mortem Examination.—(F. B.)

A partial examination was allowed, with any further investigations thought desirable. An abdominal section was made 47 hours after death. The body was emaciated, but was not weighed.

The stomach wall was evidently thickened. It was opaque and of pale pink colour, while the small intestines were yellowish and transparent. The large gut was pale and thin-walled and distended with gas. The greater curvature of the stomach was situated just half-way between the xiphoid and the umbilicus. The pylorus was felt to be hypertrophied. After tying off the œsophagus and duodenum the stomach was removed. Its capacity was 2 ounces 1 drachm, and it contained about 2 drachms of mucus and food débris. The mucous membrane was slightly hyperæmic and presented no rugosities. The wall was thickened and had almost a leathery character on handling. (Dr. Mackey negatives this hypertrophy, but I am still inclined to think that the stomach wall was not of normal thickness.) The mucous membrane near the pyloric orifice was more hyperæmic than the rest of the stomach and was considerably puckered. An ordinary director passed quite easily and the canal seemed to be obstructed more by folds of mucous membrane than by a real stenosis. The full capacity was not estimated for fear of damaging the finer structures. The pylorus was, transversely to its axis, of oval shape, and, measured as accurately as possible without cutting across, had in its widest part in the recent state a diameter of 18 millimetres. It was placed in formalin solution, together with a small portion of stomach wall.

[1] Miller and Willcox: Gastric Conditions in Wasted Infants, THE LANCET, vol. ii., 1907, p. 1670.
[2] Thomson: Clinical Examination and Treatment of Sick Children, 1908.
[3] Still: Common Disorders and Diseases of Childhood, 1909.

The peritoneum and mesenteric glands were normal and no signs of tubercle were seen anywhere in the abdomen. The liver, pancreas, kidneys, and suprarenals were apparently normal.

Pathological Report.—(L. M.)

The pyloric portion of the stomach shows a typical hypertrophy; about 2 inches from the pyloric ring the stomach wall becomes markedly thickened while the lumen becomes rapidly narrowed, so that rather more than the last inch is converted into a firm cylinder as hard as one's finger and about the same diameter. The hypertrophy ends abruptly at the pyloric valve, presenting a marked contrast with the thin wall of the duodenum and showing typical cervix-like termination.

The specimen was hardened in formalin, passed through alcohol and chloroform, and sections embedded in paraffin, a process which caused considerable shrinking, for whereas in the recent state its maximum diameter was 18 millimetres it was now only 13 millimetres; consequently the measurements which I subsequently made do not represent the size of the organ during life, but may be usefully compared with specimens treated in a similar manner.

As the cross-sections differ somewhat according to their distance from the pyloric ring I made several sections, each about an eighth of an inch from the other, and these were stained and mounted and examined and measured microscopically. The following measurements represent an average made for the different sections:—

	Mm.
Total diameter	12·15
Thickness of wall ...	3·7
Width of longitudinal muscle	0·4
Width of circular muscle	2·2
Submucosa	0·3
Mucosa	0·8

As regards the microscopic appearance of the section, the muscle appeared quite healthy and there was no excess of fibrous tissue and no evidence of any inflammatory change; the submucosa and mucosa show nothing which I recognised as abnormal, except that the mucous membrane was thrown into numerous folds by the contraction of the circular muscle (see figure).

Reproduction of photograph of cross-section 15 millimetres from the pyloric ring.

At the time that I examined the sections I knew nothing of the dimensions of the normal pylorus in infants, and was not then acquainted with Still's work on the subject, so in order to get some further information I made microscopical examinations of the pylorus in all the necropsies on infants under one year at the Queen's and Maternity Hospitals. Although my experience only extends to some two dozen cases it has given me more confidence in approaching the subject, and I know now that there is great variation in what one may regard as the normal thickness of the pyloric wall quite apart from variations due to the degree of contraction at the time of death. Figures which I have collected show that in the present case the circular muscle is rather more than double the normal width, while the longitudinal muscle, the submucosa and mucosa, are not beyond the normal limits.

Another fact of some interest is that in this small number of necropsies I encountered two cases of undoubted pyloric hypertrophy in which there had been no gastric symptoms during life suggesting stenosis. The first case was that of an infant who died at the age of six months from congenital obliteration of the common bile duct, but who had never vomited till within a week of his death. The pylorus was long and firm and in the fresh state measured 1½ inches in diameter, and after embedding its measurements were:—

Total diameter ...	18 × 13 mm.	Circular muscle ...	2·1 mm.
Thickness of wall...	3·8 mm.	Longitudinal muscle	0·8 mm.

The second case was that of an infant of seven months who died from broncho-pneumonia and had never had any gastric symptoms; in this case the pylorus was firm and long, and after hardening measured:—

Total diameter	12·1 mm.	Circular muscle	2·1 mm.
Thickness of wall ...	3·3 mm.	Longitudinal muscle	0·4 mm.

And in this case there was a marked excess of fibrous tissue scattered among the muscle fibres. These cases seem to teach one that hypertrophy alone does not interfere with the functions of the pylorus.

With regard to stenosis the post-mortem evidence appears to me even more difficult of interpretation, for the lumen of the pyloric orifice varies greatly, and in several normal cases it was impossible to insert anything larger than a small probe. This, after all, is only what one might expect, for I take it that during life the normal condition of the pylorus is one of closure, and we ought to expect to find it closed at death, and the circular muscle in a state of contraction. But as long as the muscle appears healthy we may assume that it is capable of relaxing, and as a rule after death a moderate amount of force will enable one to dilate its lumen without in any way damaging the muscle fibres.

It appears to me that in the absence of definite organic changes, such as replacement of muscle by fibrous tissue, it is hardly possible for the pathologist alone to make a diagnosis of hypertrophic *stenosis*. It follows, if this view be taken, that the morbid condition is essentially one of spasm of the pylorus—that is to say, that for some reason the pylorus remains closed through contraction of its circular fibres at times when a normal pylorus should relax, and it is not difficult to imagine that an increase in the amount of circular muscle makes a condition of spasm one of greater evil.

The small portion of the stomach wall was treated in the same way as the pylorus. The total width of its muscular layers was 0·9 millimetre. I do not find that this is beyond the thickness of other stomachs in infants of about the same age. The mucous membrane shows a condition of chronic catarrh, and there appears to be too little mucosa, but how far this is due to post-mortem digestion I cannot say.

NOTE ON A CASE OF ARTIFICIAL PNEUMOTHORAX.

BY DR. W. HOLMBOE,

MEDICAL DIRECTOR OF MESNALIEN SANATORIUM, NORWAY.

THE following interesting case is that of an English medical graduate who was admitted to the sanatorium in the autumn of 1906 under the care of my predecessor, Dr. Sömme, and who allows me to send this note to THE LANCET. On admission there were signs of recent but extensive disease in the left lung, the right lung being then practically normal. During the following two years the patient was treated as an invalid, was largely confined to his bed, had considerable cough and expectoration, and subfebrile temperature. Besides the usual sanatorium treatment, rectal injections of Marmorek's serum and subcutaneous injections of tuberculin (Denys) were tried. The serum was a failure, but some improvement followed the tuberculin injections until the higher doses were reached, when the expectoration became more profuse, and lassitude and weakness followed. The tuberculin treatment was therefore given up. Early in February, 1909, the temperature was still subfebrile and the condition of the lungs was as follows. *Left lung:* Over the whole lung the normal resonance was absent on percussion. Over the second and third intercostal spaces the percussion note was "boxy." Behind there was dulness increasing towards the base. There was deficient air entry over the whole, and after coughing râles were audible everywhere. Over the base behind rhonchi and sibili could also be heard. *Right lung:* There was slight dulness over the apex in front and behind. Over the apex expiration was loud and prolonged. No adventitious sounds could be heard except over a small area at the angle of the scapula, where a few râles were audible.

As practically the whole of the left lung was involved and the prognosis was bad, treatment by compression or by artificial pneumothorax was decided on. Saugman's modification of Forlanini's nitrogen pump was employed. The hollow needle was inserted into the sixth space in the anterior axillary line. The manometric oscillations were well marked, showing a negative pressure of – 14 centimetres water on inspiration and – 6 centimetres on expiration. The eye of the needle was therefore clearly between the two surfaces of the pleura and nowhere else; 180 cubic centimetres of nitrogen were then admitted in three portions. The operation was followed by considerable dyspnœa and a dragging pain which caused a restless night in spite of an injection of morphine. Next day 275 cubic centimetres were injected, after which the pain gradually disappeared, but dyspnœa on the slightest movement remained very severe. The injections were repeated at intervals of two to three days at first. Later, when the pneumothorax became complete, the injections were given at intervals of one to two weeks, and after the treatment had lasted a year an interval of one month was allowed.

On the evening of the day of the first injection the temperature (rectal) rose to 100° F.; it then gradually fell to normal in the course of ten days. After confinement to his bed for three weeks the patient was able to get up and walk, although this caused considerable dyspnœa at first. Later this symptom largely disappeared, and even after a recent injection with a positive intrapleural pressure of 10 centimetres of water on expiration the patient was able to walk briskly on a flat road. The cough and expectoration decreased gradually and had completely disappeared by midsummer. Over the left lung the characteristic signs of a pneumothorax were present. The cardiac dulness was completely lost, and the heart sounds were distant and muffled. The limits of the left pleura extended to about two inches to the right of the middle line in front. The pneumothorax therefore was very extensive and overlapped the left margin of the right lung. The condition of the right lung has improved. A Roentgen photograph shows that the heart is completely displaced over to the right side of the chest where it is embedded in the right lung. The left lung is shown compressed from below upwards and to the right. By its apex it is still adherent to the surrounding structures. It is extraordinary that with the heart so much displaced and the only lung in use compressed by the heart below, by the pneumothorax in front and to the left, and by cicatricial tissue in the apex, the pulse should be as low as 70 and that dyspnœa should follow only considerable exertion.

At the present time the patient is up all day, he has neither cough nor expectoration, his temperature and pulse are normal, and his weight is about 20 pounds greater than on admission. He works several hours a day, and in my absence has satisfactorily carried out my duties for several weeks. In spite of the fact that a private sanatorium admits a great number of cases in an advanced stage of the disease, the opportunities for applying this treatment are limited, as the disease is generally too extensive in the sounder of the two lungs. Twice pleural adhesions proved a bar to the treatment at the outset. In four cases the sounder of the two lungs was too much involved for any lasting good to result, and in four cases excellent results, similar to that described above, were obtained.

Lillehammer, Norway.

A DERMOID CYST OF THE TESTICLE ASSOCIATED WITH A NEW GROWTH.

BY F. J. F. BARRINGTON, F.R.C.S. ENG.,

HOUSE SURGEON TO ST. PETER'S HOSPITAL.

Clinical history.—The patient was aged 42 years, married, but had no children. He was admitted into St. Peter's Hospital on account of a swollen right testicle. The right testicle had always been larger than the left; when a child the patient remembered it being "pierced" by a medical man. The testicle had been gradually increasing in size for from three to four months. Beyond an aching in the groin when a suspender was not worn there was no pain. He had had two attacks of gonorrhœa, but denied having had syphilis. Before admission he had been treated as an out-patient for from three to four weeks with potassium iodide; in this time the swelling became larger owing to the development of a hydrocele.

On admission the vas and cord were normal. There was a solid enlargement of the testicle with a hydrocele of the tunica vaginalis; the epididymis could not be differentiated; the swelling was nowhere adherent to the skin. There was no testicular sensation, but slight tenderness on hard pressure. There was no palpable enlargement of the lumbar glands. The left testicle appeared normal. The clinical diagnosis rested between tertiary syphilis and a neoplasm. The testicle was explored by opening the tunica vaginalis, which contained about 5 ounces of clear, straw-coloured fluid. The testicle was found to be swollen and to have smooth bosses on the surface, which did not appear to be cystic. Orchidectomy was then performed in the usual way.

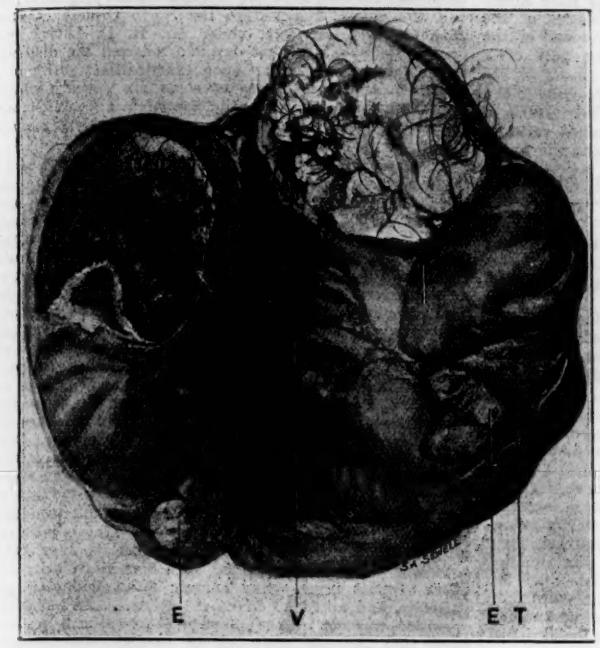
The patient was seen between six and seven months after the operation; he was then quite well and had no signs of local recurrence or secondary deposits in the abdomen.

Macroscopic examination.—The parts removed consist of the right testicle, tunica vaginalis, and about 3 centimetres of the spermatic cord (Fig. 1). The parietal layer of the tunica vaginalis has been incised vertically and everted. The tunica vaginalis is not thickened or congested; its surface is quite smooth, and there is no lymph deposited on it. The visceral layer covers a smooth, slightly bossy, oval swelling, measuring 8 by 5 centimetres, and occupying the usual position of the testicle. A vertical section through the swelling shows the following three structures contained within the tunica albuginea, from above downwards: a dermoid cyst, a lobulated new growth, and normal testicular substance.

The interior of the cyst measures 2½ by 4 centimetres; it is filled with a mixture of hair and white sebaceous débris. The hair is fair brown in colour, about the same as that of the patient. The interior of the cyst is roughly oval in shape, but there are two ridges projecting into it, one running transversely round the inner or left half of the cyst below its middle, and the other projecting upwards from the lower part of the cyst wall on its right side and running in a coronal plane; in the former ridge are some thin plates giving a bony sensation to the point of a metal instrument. There are no structures resembling teeth in the cyst.

The tunica albuginea passes off the cyst wall on to the growth. This is yellow ochre coloured and divided into

FIG. 1.



The contents of the dermoid cyst have been removed on the right side of the specimen. T, Testis. V, Vas. E, E, Epididymis.

lobules by trabeculæ running in from the tunica albuginea and adjacent part of the wall of the dermoid. It appears to be more intimately connected with the wall of the dermoid above than with the testis below; the latter can be separated from it without cutting, whereas the former cannot. On the right side a series of cysts, many of which communicate with each other, intervene between the tumour and the wall of the dermoid. They contain a mucinous substance, and their walls, which have a cartilaginous feel, bear the same relation to the tumour as does that of the dermoid. The cavity of the dermoid has no communication with the cavities of these cysts.

The testis occupies the extreme lower pole of the swelling; it is wedge-shaped, and its section has the appearance of normal testis and measures 1½ by 1 centimetres. The lower pole of the epididymis corresponds with the small wedge of normal testis, but the epididymis only extends about half-way up the swelling. Above this the tunica vaginalis is reflected off the posterior surface of the dermoid up to its upper pole. The cord and vas are normal.

Microscopic structure.—The dermoid cyst has a wall composed of laminæ of fibrous tissue connected by areolar tissue in which are a fair number of vessels. In places there is a considerable small round-celled infiltration between the laminæ. The lining epithelium has disappeared in some sections; in others it is seen to be a stratified epithelium with sebaceous and sweat glands resembling that of skin. It differs from skin in the following points: (1) Papillæ are very poorly developed and in many places quite absent; (2) the number of sebaceous glands is greater; and (3) the horny layer is almost completely absent owing to the premature shedding of the cells.

A vertical section through the projection on the inner wall of the cyst shows it to be a thickening of the dermoid wall. The epithelium of this is thrown into long folds, giving a villous appearance. Sections of one of the hard plates in this ridge, after decalcification, show very dense fibrous tissue with few cells, and do not present any appearance suggesting bone.

The tumour has an alveolar structure (Fig. 2). The stroma varies considerably in amount, and consists of rather dense fibro-areolar tissue. The alveoli vary in structure. On the one hand, an alveolus may consist of a single layer of short columnar cells with large, clear nuclei surrounding a narrow lumen which contains a shrunken mass of secretion staining deeply with hæmatoxylin. On the other, it may be irregular in shape, much larger, without any lumen, and with the peripheral cells only columnar, the inner ones being irregular in shape. In parts the cells have shrunk away from the stroma in hardening. The tumour has no true capsule anywhere; the tunica albuginea shows invasion by tumour cells in the form of strands lying between the fibrous laminæ; this occurs to a less extent in the walls of the dermoid and the mucin-containing cysts.

The stroma of the testis is directly continuous with that of the tumour; in the transitional region it is rather thickened as if from mutual pressure; the alveoli of both testis and tumour are flattened at right angles to the plane of contact. There is a fairly sharp line of separation between the alveoli of the testis and those of the tumour, and no zone containing both exists. The mucin-containing cysts have very dense fibrous walls and a lining epithelium of two or three layers of flattened cells; no goblet-cells can be seen.

Diagnosis.—The dermoid is situated within the tunica albuginea, and is therefore a dermoid of the testicle and not

FIG. 2.

Section of the tumour under a low power.

a dermoid of the scrotum attached to the testicle. The recent increase in size of the swelling was presumably due to the growth of the tumour. The tumour may have arisen (1) from the testicle, in which case the presence of the dermoid is merely a coincidence; (2) from the wall of the dermoid; or (3) from some tissue forming part of a teratoma.

1. The tumours with an alveolar structure occurring in the testicle are carcinoma and endothelioma. The carcinoma arising from the testis is of the spheroidal-celled variety; when the columnar-celled occurs it has arisen in the hypoblast of a teratoma. In endothelioma there are several layers of cells around the lumina, which are either blood or lymph spaces. It therefore seems unlikely that the tumour arose from the testis.

2. The tumour cannot be seen to reach the lining of the dermoid at any point, and the lining is continuous throughout; had it arisen from the lining it would have been a squamous-celled carcinoma. If the tumour arose from some appendage of the dermoid epithelium—e.g., sebaceous or sweat glands—one would expect it to show some signs of its presence within the cyst. Its cells and alveoli have very little resemblance to those of these appendages.

3. The last alternative—that the tumour has arisen in a teratoma from some hypoblastic structure—seems to have fewer arguments against it than the two preceding. It is true that other tissues—e.g., bone, cartilage, nervous tissue, &c.—so often found in testicular teratomata have not been found in the present case, but any examination short of complete destruction of the specimen is necessarily incomplete. The nature of the cysts containing mucinous substance is uncertain; they do not appear to be mere dilatations of the alveoli of the tumour, since no intermediate cysts are present and the fibrous tissue separating their epithelium from the cells of this tumour is as thick as that surrounding other parts of the tumour. The projection into the cavity of the dermoid, which has been described in other cases as having a different structure from the rest of the cyst, is absent in the present case.

In conclusion, I wish to thank Mr. J. G. Pardoe for his kindness in allowing me to publish the case.

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A CASE OF EXTRA-UTERINE PREGNANCY OCCURRING TWICE IN THE SAME PERSON.

BY W. W. STAINTHORPE, M.D., B.S. DURH.

I READ with much interest in THE LANCET of July 9th, p. 101, Dr. G. A. Gordon's report of a case coming to his notice having the above heading. In a somewhat similar case to be described the two facts—(1) of the patient having given birth to a full-term child in the interval between the two extra-uterine pregnancies; and (2) that there was practically no cessation of menstruation in the second extra-uterine pregnancy—warrant me in recording it.

A married woman, aged 32 years, gave birth to a female child in 1900; she enjoyed good health and menstruated regularly until March, 1907, when she noticed the menstrual period lasted one month, during which time she experienced severe colicky pain in the left iliac fossæ, coming on at intervals and lasting in some instances a quarter of an hour and at others two or three hours; as the pain became more severe in character the discharge from the vagina became more profuse. On April 9th she consulted me for what she thought was "colic of the bowels." Upon examination a blood-stained discharge was found coming from the vagina. The os uteri felt soft and patulous, and the body of the uterus felt a little enlarged. In the left fornix a tender swelling of about the size of a small pear, distinctly separate from the uterus, was felt. As the pain during the following ten days became more severe and more continuous, the tumour larger in size, and the discharge more copious, I diagnosed the case to be one of extra-uterine pregnancy, and had the patient removed to the North Ormesby Cottage Hospital, Middlesbrough, under Mr. H. D. Levick, who opened the abdomen next day and removed the distended left Fallopian tube, which upon examination was found to contain a tubal pregnancy of some six weeks' duration. The right ovary and tube were normal in appearance, and the uterus was only slightly enlarged. The patient made an uneventful recovery.

In February, 1908, the patient became pregnant, and in the following October gave birth to a full-time male child. Four months after the child was born the patient menstruated normally, and continued to menstruate normally each month until Sept. 13th, 1909, when she noticed that the period was one day later than usual. On the evening of the 14th a severe attack of abdominal colicky pain set in, accompanied by violent vomiting of bilious matter. A few hours after the pain commenced a slight sanguineous discharge appeared from the vagina. The patient kept in bed, and on the 14th sent for me after having passed what she thought to be a miscarriage. On examination of the supposed miscarriage I found it to be a complete decidual cast of the uterus. The uterus itself was much enlarged, the os uteri was soft and patulous, and in the right fornix could be felt a freely moveable mass, very tender to the touch and distinctly separate from the uterus. Remembering the patient's previous history, and the fact that the pain in this instance was of the same character, I came to the conclusion that one had again in all probability to deal with a similar condition taking place in the right Fallopian tube. This opinion was confirmed a few hours later, when the patient experienced a violent attack of abdominal pain occurring during the effort to pass urine. She became faint, collapsed and pulseless, and appeared to be *in extremis*. As immediate operation was out of the question the treatment resolved itself into the administration of cardiac stimulants by hypodermic injection and copious salines per rectum. In a few hours the general condition markedly improved and the patient had some refreshing sleep. Twelve hours after the immediate attack Mr. Levick again operated. Douglas's pouch was filled with recent blood-clot, which being cleared away brought to view the right Fallopian tube seen to be very much distended. No rupture of the tube could be found, and as no adhesions existed little difficulty was experienced in removing the mass, there being no active hæmorrhage present. On examination of the tube and blood-clots it was found that a tubal abortion had taken place into the abdominal cavity through the abdominal ostium. The patient made an excellent recovery.

Guisborough, Yorks.

THE EFFECT OF RADIUM ON THE HEALTHY TISSUE CELL.

BY G. PERCIVAL MILLS, M.B., B.S. LOND., F.R.C.S. ENG.,

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THIS preliminary note is the result of some experimental work done on the comparative effects of radium on normal and malignant tissues. The mouse was chosen as a suitable animal in which to study the matter owing to the ease with which it can be inoculated with carcinoma. Here, however, only the effect of exposure to radium on the normal body cells will be dealt with. Since the liver is conveniently situated for application, the radium was applied over the anterior abdominal wall and the subsequent changes in the liver tissue were observed.

The applicator used was one of 500,000 units and was guarded by a shield which cut off the α and β rays, while allowing the more penetrating γ rays to pass through. It was applied for 30 minutes in each case. The mice were killed at varying intervals after exposure and the liver examined microscopically.

The earliest definite change noticed occurred about one hour after irradiation. The liver cells in this section were more granular than usual, and there were none of the clear glycogen-containing vacuoles which are present in the

normal mouse liver. Otherwise the liver cells themselves appeared normal. The connective tissue elements also showed the early stages of a reaction. This was manifested by the presence of numerous groups of round and spindle cells in the neighbourhood of the veins. There was distinct hyperæmia, but at this stage there was no *general* increase of the mesoblastic cells.

Three hours after irradiation the liver cells were profoundly altered. The protoplasm was deeply granular and the nucleus stained very clearly and was considerably swollen. The latter averaged in diameter fully one-half that of the liver cell, whereas in the normal condition it averages from one-quarter to one-third. The whole cell also was slightly increased in size, but not nearly to such an extent as the nucleus. The areas of mixed-celled infiltration round the veins were larger and more numerous. They consisted mainly of lymphocytes and spindle cells, but there were occasional polymorphonuclear leucocytes. There was here also a *general* increase in connective tissue cells throughout the section. The hyperæmia was intense, but no hæmorrhages were observed.

Sections taken six hours after irradiation showed that the liver cells had become more normal in appearance. The protoplasm was no longer granular, but the nucleus was still enlarged. The hyperæmia was less, and there was less infiltration with connective tissue cells than in the previous section.

In 24 hours the vast majority of the liver cells appeared normal. There were, however, scattered about the section a few cells which appeared to have degenerated completely. With hæmatin and Van Gieson's stain the protoplasm stained a dull brown and the nucleus a darker brown, showing no structure whatever. It is probable that these were cells which had failed to recover from the condition noted above.

While these changes were found in the liver generally, there was in most of the sections a place near the edge where the cells had suffered a greater and permanent change. There was in the sections taken three hours after irradiation a mass of liver cells which had completely lost their structure. The outline of the cell was lost, the nucleus stained a fair structureless brown, and the condition resembled coagulation necrosis. A similar condition was found in the sections examined up to the eighth day after irradiation, and in the later ones some signs of organisation of the affected part were observed. Presumably this mass of necrosed tissue corresponded to the spot immediately over which the radium was applied, and represents the effect of the rays at very close range. It is of interest that in no case was any inflammation of the skin observed.

Neglecting this area of intense action, then, the liver may be said to have become normal again in three days after irradiation. A few areas of infiltration remained near the veins, but as these occurred to a slight extent in some normal livers they could not be considered pathological. Similarly, at intervals of five and eight days after irradiation the main mass of the liver appeared to be normal.

In the sections taken 14 and 15 days after irradiation, however, there were obvious signs that a second or late reaction was taking place. This was confined to the connective tissue elements and consisted of a marked general infiltration of the liver with lymphocytes, connective tissue cells, and a few polymorphonuclear leucocytes, and this to a greater extent than in any of the sections taken during the few days immediately following irradiation. There were also large masses of similar cells clustered round the veins. These changes were associated with a general hyperæmia. No area of necrotic cells was observed. It would appear that this is the histological basis of the "radium reaction" observed clinically by radiographers, and it is of interest to note that it is confined to the connective tissue elements. This late reaction lasts longer than the initial one, for 20 days after irradiation the liver was still found to be in a similar condition.

Briefly, then, the effect of radium on normal tissues as exemplified by mouse liver is a follows: 1. There is a transient change in the liver cells somewhat resembling "cloudy swelling." 2. There is an early inflammatory reaction lasting a few days. 3. There is a late inflammatory reaction coming on in about 14 days and lasting much longer.

Birmingham.

Reviews and Notices of Books.

Psycho-therapy. By HUGO MUNSTERBERG, M.D., Ph.D., &c., Professor of Psychology in Harvard University. London: T. Fisher Unwin. 1909. Pp. 401. Price 8*s.* 6*d.* net.

THE useful term psycho-therapy, introduced to indicate the practice of treating the sick by influencing the mental life, even before it was generally accepted by the medical profession, had been seized upon by those whose pleasure and profit it is to exploit the little known, and had too often been used to cover an incongruous blend of mysticism and science. It has been Professor Munsterberg's aim in this present work first to counteract the misunderstandings which prevail on this important matter, and secondly to state a case for the further elaboration of the study of psychology during the process of medical education. There is but little that is new in the methods of psycho-therapy, though we believe the term itself to have been but recently devised; but there is no doubt that the systemizings of the method under scientific auspices, as well as the use of analogous methods by religious and quasi- or pseudo-scientific bodies, have attracted a vast amount of notice to a subject which has, unfortunately, in the past received but the scantiest attention at the hands of our profession. The age in which we live is, perhaps even more than the age of the last generation, one in which philosophic thought lay for the most part in materialistic categories, in a perpetual and very praiseworthy hunt for the connexion between the appearances of our experience and in the profound belief that the perfection of technical civilisation can make life more worth living. The author believes that while the real achievements of the age will leave a permanent mark, that yet there are signs proving the realistic wave to be ebbing and a new period of idealism to be rising. "The aim of the last generation was to explain the world, the aim of the next will be to interpret the world; the one was seeking laws, the other will seek ideals." Psycho-therapy has the two tendencies in its composition; there is something of the naturalistic movement and something of the idealistic, and the mixture results in a confusion which is detrimental. To reduce this confusion to order must be the work immediately before us.

In Part I. of his book Professor Munsterberg sets himself to expound the psychological basis of psycho-therapy. In chapters on Mind and Brain and Psychology and Medicine we have most interesting accounts of that aspect of the borderland between psychology and metaphysics which appeals to a slowly increasing group of philosophers who appear to derive their inspiration from the teaching of Hegel. Our inner life can be looked at from two most opposite standpoints—the purposive and causal, the latter being an abstraction in the realm of psychology from the former, which is immediate and non-psychological. To the physician as such, however, the interest in mental life lies in the aim of producing a certain effect—namely, that of health—and to him the mental life of the whole personality comes in question as belonging to a causal system—that is, to the domain of scientific psychology. It must be remembered also that faith in the processes of psycho-medicine by no means leads to a neglect of other means at our hands. Even as in the past, an unconscious psycho-therapy has been used as an adjuvant to drugs and other physical therapeutic agencies, so now where psycho-therapy is consciously employed other and adjuvant means should not be neglected. Herein lies at least one of the errors of those unscientific bodies which practise psycho-therapy on a vast scale; the psycho-therapeutic process is relied upon to do that which in our

present state of knowledge the drug or the knife or other physical agency alone can effect.

The second part deals with the practical work of psycho-therapy, its general and special methods. The task of the physician does not begin with his curative methods, and, as in other branches of medicine, preliminary diagnosis has to be made and perceptions and associations, reactions and expressions have to be examined with as much care as have the urine and the blood in other classes of disease. The diagnosis being as accurately established as is possible, the appropriate psycho-therapeutic measure has to be selected, for it is to be distinctly understood that in this, as in every mode of therapy, treatment cannot be invariably carried out in a schematic way after a rigid pattern. With a few vague words of encouragement, or with a routine of tricks of suggestion very little will be effected, for subtle adjustment to personal needs and individual conditions is necessary in every case where the psychical factor is to play an important part. It is one of the surest tests of psycho-therapeutic skill to select for any one case the appropriate means of cure. This platitude needs emphasis, for it too often happens that psycho-therapy, as understood in this country, spells "rest-cure" and nothing more. In the chapter on special methods many useful lines of treatment are indicated, the methods for the most part being those which have long been practised, but not under the present nomenclature. An account of the psycho-analytic method of treatment is given.

Professor Munsterberg delivers himself with commendable emphasis on the subject of education. Much of our present civilisation leads the average man and woman to a superficiality which undermines sound mental life, and we are apt to look with something of contempt at the older fashions in which the demands of authority and discipline controlled the education of the child. We eulogise the principle of following the paths of our true interest, meaning thereby the paths of least resistance. Study becomes play, and while the child learns a hundred things, he does not learn the most important one, to do his duty. "He who has never learned obedience can never become his own master, and whoever is not his own master through all his life lacks the mental soundness and mental balance which a harmonious life demands."

This work may be read with advantage by the metaphysician, the psychologist, and the physician, but we above all wish that it could be brought to the notice of that large and increasing class of superficially informed persons who obscure truth in a multitude of crude notions, expressed in high-sounding but vague, and often quite meaningless, expressions. From this class are recruited those who gape at the tricks of charlatanism and ignore even the obvious facts of everyday life. But this class will not read a book which makes them think.

Ashton's Gynecology: A Text-book on the Practice of Gynecology. By W. EASTERLY ASHTON, M.D., LL.D., Professor of Gynæcology in the Medico-Chirurgical College, Philadelphia. New (4th) edition. With 1058 original line drawings. London: W. B. Saunders Company. Pp. 1099. Price 27*s.* 6*d.* net.

IT is interesting and instructive to notice that this work has run through four editions in a comparatively short space of time. It represents to our mind what we may term a study text-book, written, that is to say, rather from the theoretical than the practical point of view. Yet at the same time we must mention that the study has not been the pathological laboratory, far from it, for the work contains very little pathology, and the illustrations are all essentially diagrammatic. For example, there is not a single drawing of the actual macroscopic or microscopic appearances of any one specimen. If, however, we refer to the title we see that it is a text-book on the Practice of Gynecology, but how the Practice or Art can be divorced with any advantage from the Science of the subject we fail to see.

Still, of its kind the book is a very fair sample. It is complete enough as far as it goes, though many of the illustrations savour a little too much of the instrument maker's catalogue, which emphasises the feeling that the principle of the work is wrong, and this is a pity because it contains a great deal of very useful information classified in a regular and orderly manner. It is of considerable size and yet we could mention several books, from which, although only a quarter the size, the student would obtain a good deal more and fuller knowledge. In the present edition the author has added a considerable amount of new matter. The section dealing with the bad effects of tight lacing has been revised and the account of the treatment of constipation by exercises amended. Dr. Ashton does not accept Crile's theory of the causation of surgical shock, and quotes with approval the views of Boise and Henderson, maintaining that we do not yet entirely understand the nature of this condition. In the treatment of acute suppurative peritonitis Fowler's posture is described and Murphy's method of continuous proctoclysis.

Dr. Ashton counsels immediate operation in all cases of tubal abortion or rupture of a tubal pregnancy, at least so we conclude, although the sentence "Surgeons practically agree in cases of rupture of tubal abortion" is not very clear and no real distinction is made between cases of tubal abortion and of tubal rupture, two very different conditions and often calling for different treatment. There are still surgeons, at any rate in this country, who are not convinced that every case of tubal abortion requires immediate operation, and, indeed, the decision depends to a large extent upon the social condition of the patient and her surroundings. The fact that, as the author says truly, there are 95 chances of the hæmorrhage stopping against five of its causing death is a strong argument, not only against undue haste, but in cases of tubal abortion with moderate hæmorrhage against operating at all.

There is a great deal of useful writing in this book and we regret that we cannot commend it entirely, but although it is described by one reviewer as "a volume of sterling merit in every detail" we cannot do so. Its chief defects, in our opinion, are that its pathology is exceedingly fragmentary and that the illustrations, although very numerous, are mainly imaginary and diagrammatic and carry no conviction to the reader. At the same time, the book has been appreciated by those for whom it was written, and that is a commendation.

The Principles of Hygiene: A Practical Manual for Students, Physicians, and Health Officers. By D. H. BERGEY, A.M., M.D, Assistant Professor of Bacteriology, University of Pennsylvania. Illustrated. Third edition, thoroughly revised and enlarged. London and Philadelphia: W. B. Saunders Company. 1909. Pp. 555. Price 13*s.* net.

THE fact that this book has reached its third edition is in itself the best testimony to its popularity with the medical profession in America, and it is intended more for the general medical practitioner than the medical officer of health or the student for the diploma of public health. The author states in his first preface that no attempt has been made to treat the subject in an exhaustive manner, the general principles upon which the health officer and the physician work in their respective capacities in relation to the public health being alone furnished. The book is, therefore, not suited to the needs of the future medical officer of health, and it cannot be considered in the light of a text-book for

health students. But viewed from the standpoint of its more general scope the work contains much which is of interest, and the fact that the references are mainly American affords to the English reader an insight into a side of public health and preventive medicine with which most of us on this side of the Atlantic are not familiar.

In discussing the influence of race as a predisposing cause of disease Dr. Bergey states that the Jews are more liable to diseases of the nervous system and less liable to tuberculous affections than others in America, while the death-rate among the children of Irish mothers from tuberculosis is greater than among children of German mothers. Conversely, the death-rate amongst children of German parentage is greater from Bright's disease than amongst the children of Irish mothers. In the chapter on water purification there are some interesting observations on mechanical filters, which are used in several parts of the United States, and we learn that the life insurance companies are indirectly making for better water-supplies by asking increased rates if the water is polluted; while as regards quantity of water the fire rates are augmented if the supply is regarded as insufficient. Dr. Bergey tells us, on the basis, apparently, of American observations, that chlorine and bromine are not capable of sterilising water when applied on a large scale, and he adds that ozone is the only agent which has so far yielded satisfactory results.

The "50 dairy rules" of the Bureau of Animal Industry, which are reproduced, are drawn up in a direct fashion, and they are, we think, better suited for common use than most of the regulations made use of in this country. Chapters on school, military, and naval hygiene find a place in this volume, but these are in each case very brief. With respect to epidemiology, some of the statements would rather puzzle the English reader. For example, we are told that "diseases like small-pox, measles, and scarlet fever are transmissible by direct contact, and diseases like typhoid fever are usually transmissible by indirect contact." As illustrating the value of isolation and disinfection in scarlet fever in Michigan during the five years 1886–90, a chart is furnished purporting to illustrate the large average number of cases out of 366 outbreaks which occurred when isolation and disinfection were neglected, as compared with the lower average of 361 outbreaks in which isolation and disinfection were enforced, and similar figures are given for diphtheria; but we must confess that we should like to know more of the manner in which the averages were made up. The port medical officer of health will find in this book the quarantine laws of the United States *in extenso*, and these should prove of interest. But Dr. Bergey has not, we fear, made himself very familiar either with English epidemiology or administration, since he furnishes a table purporting to establish the value of notification in this country which covers the period 1871–90, arranged in five-yearly periods, and he observes that while there was a decline in the death-rate from all causes from 1871–75 to 1886–90 of only 14·5 per cent., there was a decline of 39·2 per cent. in the death-rate from the total zymotic diseases and a decline of 64 per cent. in the death-rate from notifiable diseases during the same period, "showing the great value of notification in infectious diseases," notification having, he says, "been in force since the adoption of the Public Health Act, 1875." Our readers will, therefore, understand why we cannot recommend the volume for the use of students in this country, although for those who are able to discriminate there is much useful information in the work.

LIBRARY TABLE.

Experimental Pharmacology: a Laboratory Guide for the Study of the Physiological Action of Drugs. By CHARLES WILSON GREENE, Ph.D., Professor of Physiology and Pharmacology, University of Missouri. Third edition, revised. With 37 new illustrations. Philadelphia: P. Blakiston's Son and Co. 1909. Pp. 76. Price $1.00 net.—Having regard to the views of the author that instruction in pharmacology should be based "on a rigid course of required laboratory experiments," and that "the student in the subject should be given every opportunity to observe for himself the changes produced by a drug in the activities of a tissue, of an organ, and of an entire organism," Professor Greene has gradually evolved the present list of experiments which may be performed by students in the University of Missouri. The drugs selected are alcohol, ether, chloroform, chloral hydrate, opium series, caffeine, strychnine, cocaine, quinine, atropine, scopolamine, nicotine, curare, pilocarpine, physostigmine, aconite, veratrine, digitalis, ergot, suprarenal gland, nitroglycerine and nitrites, carbolic acid, and salts of potash, calcium, and barium. The experiments are arranged much on the same type throughout, with modifications according to the action of the drug to be studied. Taking alcohol as a type, to which five pages are devoted, the following gives the list of experiments to be done to show the effects of alcohol on (1) the frog—injection into dorsal lymph sac; (2) ventricular muscle; (3) frog's heart; (4) isolated mammalian heart; (5) work of gastrocnemius muscle; (6) voluntary human muscle (demonstration); (7) circulatory and respiratory system of mammals; and (8) reaction time of reflex frog. To ether and chloroform nine pages are given, and the experiments to be done (nine for ether and nine for chloroform) are somewhat like those detailed under alcohol, but having regard to the specific actions of these drugs, experiments with respect to their action on the irritability of muscle and nerve, on blood pressure, and on the germination of seeds and yeast are introduced. In caffeine an experiment on diuresis in a mammal is described. In the text there are some references to the *American Journal of Physiology* for further details of the experiments, and in a short appendix an account is given of physiological solutions, how to anæsthetise a dog, cat, rabbit, or guinea-pig, the preparation of the ventricular muscle, and allied phenomena. There are a large number of tracings which are well done. Obviously such a programme with the restrictions at present in force could not be carried out in this country. This little work will prove useful to teachers of pharmacology, but it cannot take the place of a text-book on pharmacology. It is what it pretends to be—a "guide," and of course only within a limited range.

Indian Plants and Drugs, with their Medical Properties and Uses. By K. M. NADKARNI, Member of the Paris Chemical Society. Madras: Norton and Co. Pp. 450.—The writer of this book states that his object in presenting it to the medical profession is to introduce to their notice the therapeutical properties of the numerous remedial drugs and agents of indigenous origin met with in India. He also intends the work for use by the "educated public in general," so as to initiate a knowledge of indigenous drugs and remedies, either procurable at a nominal price in all Indian bazaars or at the mere cost of collection from the roadsides or gardens in their immediate neighbourhood. An index of diseases and their suggested remedies is given at the end of the book to help the reader to select the particular remedy for the ailment under consideration. In the body of the book the Indian plants and drugs are arranged in alphabetical order in accordance with their Latin nomenclature, and are thus readily available, the natural orders are stated, and the corresponding names of the plants or drugs is given in English, Sanskrit, Hindustani, Bengalee, Telungu, Tamil, Canarese, and Malayalum, which should be of great assistance to local native practitioners in India. The habitat, properties, uses, and native Indian preparations are all fully described. The compilation appears

a useful one, made with intelligence; the type is clear and the printing good—particularly good for India. As, however, the author tells us the work is meant for distribution amongst the general public, we must take exception to the inclusion of certain mischievous advertisements at the end of the book, notably those recommending certain remedies for the treatment of syphilis and of gonorrhœa in both sexes, and others of drugs which excite sexual appetite and "restore lost manhood." Such advertisements should not occur.

A Synopsis of the British Pharmacopœia, 1898. Compiled by H. WIPPELL GADD. Seventh edition. London: Baillière, Tindall, and Cox. 1910.—This little pocket-book is full of useful data, a fact which has called for a seventh edition. It bears evidence of very careful compilation, and certain analytical factors which are included will afford the pharmacist some useful information. The work of reference to official preparations, to their characters and dose, is made easy by the clearness of the text, by the general observations, and by the uniform tabulation of the facts. An important departure is the addition of the new poisons schedule (Poisons and Pharmacy Act, 1908) at the end of the book, with the clauses of which, of course, it is essential pharmacists should be familiar.

JOURNALS AND MAGAZINES.

Proceedings of the Royal Society of Medicine.—The May and June numbers of the Proceedings contain a large number of interesting contributions, to which we wish to call somewhat belated attention. Among the contents of the May issue we may note first Dr. F. Langmead's paper on Eighty Consecutive Cases of Wasting Infants Fed on Undiluted Citrated Milk. This method of modifying milk was first advocated by Sir Almroth E. Wright in THE LANCET of July 22nd, 1893, p. 194. Dr. Langmead does not find this method suitable for infants below a fortnight old, and for those above he uses 2 gr. sodium citrate in watery solution to every ounce of milk. Dr. Langmead records that "he expected to meet with children for whom citrated milk seemed unsuitable, but so far he had not done so." In the Clinical Section Mr. Charters J. Symonds records a case of Rodent Ulcer Successfully Treated by Radium, although, "while the skin has recovered, there is still active disease in the deeper parts." In the discussion of this and other papers on radium treatment some doubts were expressed as to the possibility of radium beneficially acting upon malignant tumours. In the Electro-Therapeutical Section Dr. A. Howard Pirie records some cases of Treatment of Hodgkin's Disease by X Rays, the glands treated being reduced to their normal size and "the red blood corpuscles and the lymphocytes increased, while the large mononuclears have decreased." Mr. C. Thurstan Holland and other speakers in the discussion quoted cases in which the glands had improved under X ray treatment, but in which the patients had nevertheless eventually died. In young people X ray treatment seemed to have more permanent results. Dr. J. Edward Squire's paper in the Medical Section gives the results of 15 years' records at the Mount Vernon Hospital on Hospital Infection of Tuberculosis. The staff at this hospital are systematically examined on entering and on leaving, and the examinations having been made by Dr. Squire himself constitute a continuous record. The conclusion arrived at after a careful and exact analysis is that "the risk of tuberculous infection, even in a hospital for consumptives, appears to constitute a very slight danger." In the Neurological Section, Two Cases of a Nervous Disease of Undetermined Nature occurring in a Brother and Sister are recorded by Dr. Guy E. M. Wood and Dr. S. A. K. Wilson. The cases appeared to be a family disease of a degenerative nature. Dr. Henry Jellett, in the Obstetrical and Gynæcological Section, considers The Place of Cæsarean Section in the Treatment of Placenta Prævia, and comes to the conclusion that there is no place for this procedure as a treatment, the existing methods being sufficient. Dr. R. Ackerley has a valuable paper in the Odontological Section on the Condition of the Mouth in 1000 Consecutive Cases of Chronic Disease. Among the 1000 cases of well-to-do people more than 1 in 5 showed a foul mouth. The cases were of the type usually seen at the spas—sufferers from various forms of dyspepsia, affections of the stomach and bowels, rheumatism, gout, rheumatoid arthritis, arterio-sclerosis, and neurasthenia. Dr. Ackerley attributes a considerable proportion of this chronic illness to neglected oral sepsis, defective teeth, and defective mastication, and pleads for a thorough-going treatment of the mouth in all cases. In the June number of the Proceedings we may call attention to the papers on Lupus in the Dermatological Section by Dr. S. E. Dore, Sir Malcolm Morris, Dr. Wilfred S. Fox with Sir Malcolm Morris, and Dr. J. H. Sequeira. The papers describe interesting cases for differential diagnosis, a case of lupus with epithelioma, and one with sclerodactyly. In the Proceedings for May Mr. Herbert Tilley records a case of a Portion of Mutton Bone removed from the Right Bronchus ten days after it had lodged there, and in the Proceedings for June a case of Removal of a Penny from the Œsophagus 13 days after it had been swallowed. Mr. Frederick J. McCann in the same number notes a successful case of Eclampsia Gravidarum treated by Cæsarean Section, and considers the applicability of Cæsarean section in this condition. The discussion disclosed a considerable divergence of view. In the Odontological Section the report of the Honorary Curator (Mr. J. F. Colyer) is given, and records the transference of the museum from 20, Hanover-square to the Royal College of Surgeons. The Curator is in want of specimens, and appeals particularly for odontomes, anomalous shaped teeth, and skulls illustrating irregularity of the teeth.

New Inventions.

A NEW FACE-SCREEN.

THE accompanying drawings represent a shield for the mouth and nose which Messrs. Down Bros. have made for me. It is very simple in construction, being extremely light and consisting of a framework of plated copper upon which a layer of batiste is stretched. The frame can also be made of aluminium. At the upper end are two curved wire ear-pieces (Fig. 1); in the alternative model (Fig. 2) these latter are replaced by loops made of elastic, which are more convenient for nurses. The whole shield is sterilisable to any extent and

FIG. 1.

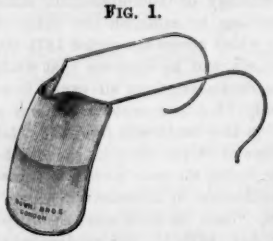

FIG. 2.

can be used for the following purposes, viz.: (1) examination of the mouth, nose, larynx, &c.; (2) for all operations, especially those on the mouth, nose, and larynx, such as removal of tonsils and adenoids, tracheotomy, &c.; and (3) for changing tracheotomy tubes in diphtheria, &c.

There is no doubt that doctors and nurses run great risk of infection when examining and operating on many parts of the body, and this shield not only protects them to a very large extent, but also protects the patient from any secretion or breath from the mouth or nose of the doctor or nurse.

It is quite comfortable and can be worn for hours without any inconvenience. I hope that this little shield will supply a much-needed want, and I shall be glad to receive any criticisms.

WILLIAM IBBOTSON, M.R.C.S., L.R.C.P. Lond.
London Throat Hospital, W.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

OLIVE OIL (B AND G BRAND).

(CHALLE, RICHARDS, HOLDSWORTH AND CO., 4, PALL MALL EAST, LONDON, S.W.)

THIS oil is shipped by a well-known house in Bordeaux which sends to this country both oil and wine. Apart from the absence of substitutes or adulterants, it is desirable, particularly for dietetic purposes, that olive oil should contain a minimum of free fatty acids. An acid olive oil is very distasteful to the palate and may easily give rise to nausea and dyspeptic conditions. We have examined salad oils containing an objectionable quantity of free fatty acid, and the amount in commercially bad samples may exceed 20 per cent. We found in the B and G brand olive oil 1 per cent. only of free fatty acid. It is scarcely necessary to add, in view of this fact, that the oil possesses a clean, bland, nutty flavour. Physical and chemical tests such as the specific gravity, the iodine absorption, and the temperature test with sulphuric acid showed that the oil is of a very high quality. The use of pure olive oil in dietetics is important, since the substitutes with which it is often mixed are less digestible.

CALSA.

(MESSRS. TORBET, LIMITED, 10, BUSH-LANE, CANNON-STREET, LONDON, E.C.)

We found "calsa" to be a particularly pure specimen of agar-agar. It is suggested for use in what is called the rational treatment of constipation. In assisting in the removal of toxic products from the bowel its administration effects a general improvement of health; morbid conditions depending upon auto-intoxication are said to be removed. There is thus evidence in favour of the use of calsa for administration, not only in mucous colitis, but in severe migraine, asthma, and bronchitis. Calsa does not contain any laxative drug, so that its action is left entirely to its softening effect upon the contents of the bowel and to its absorbing properties. A mild laxative may be added if deemed to be desirable.

PERPETUALE.

(R. W. MILLS AND CO., BOURNE, LINCOLNSHIRE.)

In accordance with the suggestion made recently in our columns that in the treatment of the septic bowel lactic acid might be administered, instead of the organisms which produce it, the above firm have prepared an aerated beverage which we found to contain 0·84 per cent. of anhydrous lactic acid. The statement is made that perpetuale contains 1 per cent. of lactic acid, but as the acid is extremely hygroscopic the difference between the claimed figure and that actually found is no doubt due to water present in the original acid used. The beverage is quite palatable, being pleasantly acid, but it contains some sugar which tempers the acid flavour to some extent. On evaporation a residue was obtained amounting to 9·03 per cent., consisting chiefly of sugar.

DIABETIC FOODS.

(MESSRS. BONTHRON AND CO., 50 AND 52, GLASSHOUSE-STREET, LONDON, W.)

The above well-known manufacturers of diabetic foods make a feature of studying the requirements of those patients who are restricted to certain foods, with the view of offering, as advances are made, as palatable an article as possible. We have recently received from them an assortment of foods, and the results of the analyses impress us with the care of the manufacturers. An excellent biscuit known as the biogene digestive biscuit contains chiefly milk protein, and another biscuit of light bran, known as "biobran drops," should be useful in obesity and constipation. The list includes some shortbreads and chocolate biscuits which closely resemble the ordinary starchy preparations. We found them to contain a negligible quantity of starch. Lastly, we have examined a sample of red currant jelly which in appearance is indistinguishable from the ordinary preparation. It contains glycerine, and the sugar present is due entirely to the fruit employed. We obtained with a solution of it a reduction of Fehling's solution, and by Fischer's reaction the formation of glucosazone.

POM POWDER TOILET SOAP.

(POM, LIMITED, LEEDS-STREET, LIVERPOOL.)

This is a clean, white, impalpable powder, occurring in the form almost of fine dust. It is very convenient to use and readily lathers. On submitting it to analysis it was found to be free from uncombined alkali and to contain a useful vehicle in the form of fine chalk. The soap powder is delicately scented and makes altogether an agreeable and useful article in the toilet.

HAYDEN'S VIBURNUM COMPOUND.

(THOMAS CHRISTY AND CO., 4, 10, AND 12, OLD SWAN-LANE, UPPER THAMES-STREET, LONDON, E.C.)

Virburnum prunifolium has some reputation as an ovarian and uterine anodyne, and has therefore been used in amenorrhœa, menorrhagia, and in obstetrical practice generally. There appear to be different views in regard to its efficacy, some authorities stating that it gives excellent results in the treatment of dysmenorrhœa, after-pains, and ovarian irritation, and commending it in cases where there is a disposition to miscarriage, while others state that experience fails to justify belief in the qualities claimed for it. Hayden's viburnum compound, however, is said to be made from viburnum opulus (Guelder rose), which is regarded as being more effective than viburnum prunifolium. Hayden's compound contains also dioscorea (colic root) and scutellaria lateriflora, described as being useful in neuralgia and convulsive affections. This compound is evidently favourably regarded in American gynæcological practice, and is supplied exclusively to the qualified practitioner to be used under his direction.

THE SIMS FILE FOR AMPOULES.

(AGENCY; SQUIRE AND SONS, 413, OXFORD-STREET, LONDON, W.)

We have given these files a practical trial and we find that they answer their purpose admirably. In making a file mark on the glass ampoule it is important that it should be made clean, so that when the small tube is fractured the fracture shall be completely regular and no splinters produced. We understand that amongst the Continental nations, particularly France and Germany, where the ampoule method of hypodermic medication is largely followed, these files are extensively used. Their shape resembles that of a saw, and the edges are finer than those of a triangular file. They are, moreover, flat and easily packed, and the teeth are cut deep so that the filing quality lasts longer. They are made from a specially selected steel.

MILK FOODS.

(WILTS UNITED DAIRIES, LIMITED, DEVIZES.)

We have on a previous occasion dealt with the products of the above firm in our laboratory, but recently some important changes in regard to the composition of these foods have been brought to our notice, and, so far as our analysis has gone, we consider them improvements. The infants' food, for example, presents a composition closely resembling that of

cow's milk without the water. We are glad to note that it contains a rich proportion of milk fat. The analysis was as follows: moisture, 6·20 per cent.; mineral matter, 5·80 per cent.; protein, 25·57 per cent.; fat, 29·00 per cent.; and milk sugar, 33·43 per cent. We have further examined a preparation called "albiron," which is a useful combination of milk protein with a small quantity of assimilable iron. It is enriched also with phosphates. Protette cocoa is again reinforced with milk protein, and is a dietetic preparation containing all classes of food substances. "Milk diet," again, is a judicious mixture of nutritive elements, including starch and protein, but with a small proportion of fat. The preparations in general give evidence of care in manufacture.

VIROGEN.

(ARTHUR H. COX AND CO., BRIGHTON.)

We have examined virogen and find that the claims made in regard to its composition are correct. It is a compound of soluble milk protein with the glycerophosphates of lime, manganese, &c., a combination which appears to give excellent results in general debility and nervous disorders. The interesting point about our examination was the evidence given of the preparation being not a mere mixture of the constituents enumerated, but a true compound.

Looking Back.

FROM

THE LANCET, *SATURDAY*, August 11th, 1832.

PHTHISIS.—INHALATION OF TANNER'S LIQUID.

There was likewise presented a man with phthisis, to whom no medicine was given, but in whom a trial was made of the inhalation of tanner's liquid. I have perseveringly tried for a year and a half, or more, the inhalation of iodine and the inhalation of chlorine, but I have never seen a case of phthisis cured by either. I have seen great temporary relief afforded, but I have never seen a single cure effected by them any more than by other measures which have been adopted. I have heard of the atmosphere in the neighbourhood of tanners being considered favourable to phthisical patients, and as there are such simple modes now of making patients inhale air impregnated with different things, I thought if a patient were made to breathe through tanner's liquid, and any benefit could be derived from it, that would be a way in which it might be obtained. This man inhaled it, and found a great mitigation of his symptoms—quite as much, nay more than, in cases where I have employed chlorine or iodine; but unfortunately he caught cold, through the windows being open, and it was necessary to treat him antiphlogistically and get rid of the bronchitis. He then inhaled again, became better, and felt a desire to go out.

I have never seen a cure effected by this tanner's liquid, but I have seen a great mitigation of the symptoms, and in chronic bronchitis more than in phthisis. In bronchitis, where the inflammation is not violent, where there is more irritability of the membrane than anything else, and profuse discharge, I have seen great good done by it. It can do no harm where the inflammation is severe. There is a man now in William's Ward with chronic bronchitis, who has experienced great relief from breathing for twenty minutes, three or four times a day, through a hot solution of tanner's liquid. Whether a decoction of oak bark alone would answer an equally good purpose, I do not know: for as the air in the neighbourhood of tanners has been so much praised, I thought it better to order tanner's liquid. It is, however, so offensive in its nature, that some people will not use it at all, especially ladies, and some are made sick by it; but as a means of mitigating phthisis it is likely to be useful; beyond saying this, I dare not speak. I intend, however, to ascertain whether breathing through mere decoction of oak bark, or Peruvian bark, may not be as serviceable.[1]

[1] Excerpt from Clinical Lecture by John Elliotson, M.D., F.R.S., Professor of the Principles and Practice of Medicine in the University of London. Delivered April 16th, 1832.

THE

BRITISH MEDICAL ASSOCIATION.

SEVENTY-EIGHTH ANNUAL MEETING IN LONDON.

THE SECTIONS.

MEDICINE.

THURSDAY, JULY 28TH.

President, Dr. R. W. PHILIP (Edinburgh).

Dr. J. F. GOODHART (London) opened a discussion on

The Treatment of Chronic Constipation.

He defined constipation as unnatural delay in the passage of the intestinal contents along the colon. The transit of the small intestine was usually rapid, and delay did not as a rule occur until the cæcum was reached. In replying to the question as to what constitutes delay, he referred to Dr. A. F. Hertz's observations on bismuth meals by means of the X rays, which demonstrated that the passage of the intestinal contents along the colon only occupied some 20 hours after taking the meal; to this there must be added for delay in the collecting chamber a variable time, probably in most people three to four hours, until the call for expulsion comes. Normally, in from 30 to 40 hours after the taking in of a meal by the mouth it is completely evacuated. Constipation, therefore, falls into two groups—constipation of the colon and constipation of the collecting chamber or rectum. The former is an automatic reflex outside the control of the will; the latter is largely aided by voluntary effort, and the trouble comes into being when voluntary effort fails. This form was mostly present in old people, in women of lax habit who had borne children, and in such as had habitually neglected to form good habits. Constipation of the colon was a more intricate and interesting subject, and was in the main a physiological one. Its causes were concerned with the neuro-muscular apparatus of the intestinal wall and with the intestinal contents. The nervous element was a preponderating one, and in this connexion Dr. Goodhart referred to the influence of habit, of the temperament of the subject, and the mental state. Chronic constipation was in many people the result of neglectful irregularity. It was sometimes an evidence of increasing mental derangement of a severe kind. He then gave an interesting account of the physiology of peristalsis, and expressed doubts as to whether it had received its due meed of appreciation. He referred to its constancy, its strength, and its directness of purpose, and pointed out that though for the most part deliberate, it was increased after each meal. He discussed the mechanism of the production of scybala, and stated that they seldom caused intestinal obstruction. He did not attach much importance to kinks and adhesions in this connexion, since peristalsis was adapted to overcome these conditions. In regard to the intestinal contents, he attached great importance to the quality, quantity, and variety of food. The absence of one of the usual meals on any one day might delay the action of the bowels on the next, and he affirmed that to ensure regular action of the bowels the colon must be full. He believed that the colon was a great feeder and that abundant absorption went on in this organ. He deprecated the idea that the object of treatment should be to keep the colon empty, for he believed it to be an important organ of nutrition. He ridiculed some of the current ideas in regard to diet, and maintained that in order to ensure regular action adequate intake sufficient to keep the colon full was a necessity. He believed that much of the constipation in women of the upper classes was due to deficient intake of food, and that the constipation of old age was in part due to the necessarily limited diet. Another class was formed by those who ate enough, but imagined themselves constipated and by taking pills actually created an artificial constipation. He also referred to the importance of the colon as an excretory organ and strenuously combated the doctrine of intestinal auto-intoxication, which he described as unsound and baneful. In regard to the treatment of constipation, he was of opinion that not every case needed it. Many people who were habitually constipated were completely healthy when unharassed by aperients. He

strongly attacked what he described as the obsession of the urgency of securing a daily stool, and also the ideas that blocks readily occurred and that the colon was to be regarded as a poison bag. He looked upon the effects of treatment by intestinal antiseptics as very inconclusive. In regard to surgical operations, he affirmed that they were based on unsound principles and were destined to pass into oblivion. When treatment was necessary each case should be carefully considered; bad habits, irregular and insufficient meals should be corrected, and care should be taken to avoid the curse of habitual pill taking. As far as possible the bowels should be left alone to work out their own salvation. The value of massage, salines, and enemata was considered. Dr. Goodhart affirmed that with advancing civilisation aperients would always be with us, but lamented the change from the occasional pill of our forefathers to the excess of the present day.

Professor C. BÄUMLER (Freiburg) also referred to the advances made as a result of physiological work and of the study of bismuth meals by the X rays. It was now possible to see if the stomach emptied itself at the proper time and to follow the movement of the intestinal contents. The position of the transverse colon and of the cæcum revealed by this method was often surprising, since the former was often found well below the umbilicus in health. He pointed out that the transverse colon could be easily felt in normal persons, not too fat, in the recumbent position in the morning, by palpation with a hand on each side of the umbilicus. He referred to the importance of maintaining the sympathetic nervous system in proper condition and tone in order to avoid constipation. For this purpose adequate sleep was a necessity, a cold bath in the morning was of value, and also regular exercise in the open air. It was important to take enough food of a mixed character, including vegetables. He deprecated unnecessary interference, and referred to the great power the organism possessed of correcting deviations from the normal.

Sir JAMES SAWYER (Birmingham), after discussing the constitution of fæces and the part played in their formation by glandular and other secretions, pointed out that the errors of habit, of alvine effort, and of diet which cause constipation were known to us, and by attention to these matters mild cases could be cured without drugs, while even in severe cases these matters were of great value as adjuncts. He laid down three canons in regard to treatment: (1) Do not leave the question of medicine to the patient; (2) do not prescribe drugs until it is certain the cases cannot be cured without them; and (3) employ a conjoined use of adjuvants of the natural methods of alvine relief. He then discussed the part played by certain factors in the production of constipation, including the neglect of the natural impulse, the use of too high lavatory seats, the neglect of the psoas and iliacus muscles, and the habitual abstinence from fruit. After breakfast was the most satisfactory time for evacuation, except in persons with piles, who should accustom themselves to defæcation at night. An effort should be made at the usual time, whether the desire were present or not. The best position for defæcation was the crouching attitude. He urged that slouching, stooping, and sitting in large arm chairs might all interfere with the normal action. He agreed that the best diet was a mixed diet, and insisted on the value of daily bodily exercise. For some cases a pill made of myrrh, Socotrine aloes, and cassia pulp given at bedtime was of great value.

Dr. H. D. ROLLESTON (London) believed that Dr. Goodhart had unduly minimised the bad effects which might result from constipation. The personal equation was of great importance; in exceptional cases no harm resulted, but in other cases they must admit the possibility of intestinal auto-intoxication, and he must register a protest against putting this out of court altogether. He wished to refer to three causes of constipation: First, want of tone of the muscular coats of the intestine, especially one form accompanying the condition of hypothyroidism. The administration of doses of thyroid often cured the constipation. Secondly, constipation due to excess of tone—spastic constipation. In some of these there was a reflex cause in the abdominal cavity, and in these it was often cured by giving belladonna or opium. Thirdly, constipation due to diminished quantity of fluid or to diminished secretion, which should be treated by giving more fluids.

Dr. G. NEWTON PITT (London) said it was striking that the fæces collect in the sigmoid colon and that the rectum was normally empty. It was also noteworthy that in the act of defæcation the descending colon was emptied as well as the sigmoid. He pointed out that intestinal secretions and residues were an important constituent of the fæces, and that bacteria might constitute almost a third of the total quantity. Some patients digested their food with less wear and tear and formed less mucus. The effects of constipation varied enormously in different individuals, and he referred to a man with an action only once in six weeks who was normal in every way. He stated that people with regular habits suffered more from trouble when disturbance occurred. He described the use of paraffin, vaseline, and agar-agar in treatment. He gave details of a case in which the bowels were only opened once in two or three months.

Mr. ARBUTHNOT LANE (London) said that the contention he had against the profession, especially in this country, was that it saw, or imagined it saw, faults or fallacies in anything new, and took no trouble to find out if there was anything true in it. That was his invariable experience. For instance, he remembered that when he originated the now popular operation of the primary resection of a rib for empyema he consulted his revered teacher, Dr. Goodhart, before publishing it in the Guy's Reports of 1882, and Dr. Goodhart objected to the treatment on the ground that the opening up of the cancellated tissue of the ribs would very probably result in the development of pyæmia. If one distinguished as he was even at that time took up such an attitude, what could be expected of the average man? However, the objection proved to be unfounded, and within a very short time it was accepted as the only efficient treatment. Precisely the same attitude towards any new measure still existed. As he (the speaker) knew constipation, it was a symptom, and the most common symptom, of intestinal stasis as affecting the large bowel. By intestinal stasis he meant such a delay of the contents of the intestine in the gastro-intestinal tract, but more particularly in the large bowel, as allowed of the absorption into the circulation of a larger quantity of toxic material than could be dealt with effectually. This delay was brought about by an alteration in the arrangement of the drainage apparatus. In early life it resulted from an abnormal distension of the intestines by too frequent feeding or by the use of unsuitable articles of diet. Later it was produced and accentuated by the erect posture of the trunk. The changes were primarily mechanical and secondarily toxic. The mechanical were: 1. Kinking of the pylorus by the development of a new ligament which attached it and frequently a portion of the transverse colon to the under surface of the liver in front of the transverse fissure and frequently to the cystic duct and gall-bladder, interfering with their normal functioning. 2. A dilatation of the stomach consequent on the kinking of the pylorus. 3. The development of areas of engorgement of the mucous membrane of the first part of the duodenum and of the lesser curvature on either side of the attachment of the acquired ligament. 4. The formation of an ulcer at a later period in these areas of engorgement. The ulcer in the duodenum readily reacted to treatment by rest, while that in the stomach was much more chronic and on that account became infected with cancer germs. 5. The development of a kink in the ileum within two or three inches of its termination. This was associated with a dilatation of the entire small intestine. This dilatation was frequently very marked in the duodenal area of the small bowel. 6. Fixation or kinking of the appendix, producing the several conditions comprised under the term appendicitis. 7. Dilatation of the cæcum, which usually occupied the true pelvis. 8. Kinking of the hepatic and splenic flexures. 9. Occasional kinks of the ascending and transverse colon. 10. The transverse colon was placed in an abnormally low level, part of it frequently lying in the true pelvis in the erect posture. 11. The sigmoid was subject to great variations, with its fixation by acquired bands and mesenteries. If the process was complete the loop was obliterated and was replaced by a short fixed straight narrow tube through which fæces were driven with difficulty. Or the ends of the loop might be fixed and approximated and a condition called volvulus resulted. Or the loop, besides being attached by its extremities, might be interrupted by an intermediate fixation and two so-called volvular arrangements resulted. There were other variations. 12. The development of the adhesions and mesenteries, which fixed the lower part of the sigmoid and

upper part of the rectum, anchored the left ovary and appendix and dragged them out of place. This anchoring resulted in the fixation of the ovary and later in its cystic degeneration. 13. The condition of the rectum varied very greatly. The general tendency was for it to elongate in direct proportion to the fixation of the colon. The more effectually the rest of the large bowel was fixed by adhesions, the greater was the elongation and mobility of this portion of the bowel, and the less capable was it of performing its normal function of transmitting the fæces at a mechanical advantage. 14. At any point of stress in the large intestine areas of abrasion and ulceration of the mucous membrane might occur, which might produce abscesses in the vicinity, especially in the fixed sigmoid or rectum. These areas might later become injected with cancer germs. 15. The stasis in the stomach and in the small intestines produced most definite clinical symptoms. Associated with the latter especially there was a considerable ascent in the level of deleterious organisms in the small bowel, with occasional infection of the biliary and pancreatic drain-pipes, producing gall-stones, pancreatitis, and later cancer of these structures. How great a part was played in the production of gall-stones and pancreatitis by the direct infection of the ducts from the intestine and by the infection of their channels by auto-intoxication was difficult to determine. He had no doubt that one or both factors brought these changes about, and that mechanical interference with the functioning of the gall-bladder and duct by adhesions might facilitate the formation of gall-stones. It was well to remember that the deleterious organisms of the intestine readily migrated through the blood-stream, as, for instance, to the genito-urinary tract, in both sexes, from which they were expelled with the greatest difficulty, while not infrequently they were ineradicable. 16. Constipation was chiefly associated with stasis in the large bowel, and was more marked the lower the area of stasis. In some localities diarrhœa might result from the stasis, or constipation might be replaced by periods of diarrhœa. Or, again, definite infections might result in an inflamed condition of the mucous membrane of an acute or chronic character. Besides the symptoms that resulted from the mechanical interference with the normal functioning of the intestine, those that resulted from auto-intoxication were of vital importance, not only in ageing the individual, but also in reducing the resistance to the entry of organisms of various sorts into the tissues. He need only mention the loss of fat with its innumerable very serious consequences, the mental misery, the complete physical and mental disability, the staining of the skin, the loss of the appetite, the marked alteration in the respiratory and circulatory system, the cold clammy skin, the degenerative changes in the breast which might sooner or latter become infected with cancer, infection of the gums, decay of the teeth, the development of tubercle, rheumatoid arthritis, &c., and all the symptoms which were generally comprised under the term indigestion. Life to these people had no attraction. The symptoms could be relieved by the removal of the factor which determined them. In some cases a gastro-enterostomy, in others the division of the ileal kink, in others the removal of the appendix, in others the division of the ileum and its connexion with the rectum as low as possible, and in others the removal of the large bowel was called for. These operations could be done at a risk which was ridiculously small considering the miserable physical and mental condition of the sufferer, and which would be still further reduced with increasing experience. The relief which was afforded was out of all proportion to the risk. In the year ending June, 1910, he had operated for constipation at Guy's Hospital on 15 patients, dividing the ileum and putting it into the rectum in 4 cases and removing the large bowel as well in 11 cases. He had only lost one, and that through an accident. Whether the English profession liked it or not, they had to face these facts. Thanks to his visit to the United States, the study of intestinal stasis was already in very strong hands, which would deal with it scientifically and effectually, and abuse and misrepresentation could no longer delay progress. While thanking them for their patience in listening to him, he apologised for the necessarily scrappy nature of his communication.

Dr. A. MANTLE (Harrogate) referred to the local effects of constipation, especially a catarrhal inflammation or local colitis produced by the irritation of hard fæces. This catarrhal inflammation was far-reaching in its effects. He maintained that some cases operated on for appendicitis were cases of mucous colitis with spasm at or near the appendix. In regard to auto-intoxication, the organism possessed natural defences, but when these broke down symptoms resulted. The toxins were especially prone to act on two systems—the nervous, leading to neurasthenia, and the circulatory. The poisons also had an affinity for the joints, and some cases of skin disease were due to bowel conditions. The method adopted at Harrogate of washing out the bowel with 30 to 35 ounces of sulphur water to get away the mucus gave good results, while massage, careful diet, and the formation of new habits were employed.

Dr. A. F. HERTZ (London) pointed out the importance of determining what part of the alimentary canal was at fault, and showed lantern slides giving the results of X ray examinations after bismuth meals. On an average the cæcum was reached in 4½ hours, the hepatic flexure in 6½, the splenic flexure in 9, the sigmoid colon in 12, and the junction of the pelvic colon and rectum in 18. He divided cases of constipation into two classes, those in which the delay occurred in the small or large intestine, and those in which the delay was occasioned in the evacuation from the rectum, a condition which he called dyschezia. The first variety could be influenced by diet, massage, and drugs, the second by such measures as re-education, exercises, the squatting position in defæcation, enemata, and suppositories. He showed lantern slides demonstrating the effect of a stimulating as compared with a non-stimulating diet upon the passage of the food through the large intestine. Massage was useful, but it was necessary to employ bismuth and the X rays to determine where it should be applied. Purgatives might hurry on the contents too much and so interfere with nutrition; therefore the smallest quantity that was effective should be given. He quoted some experiments to demonstrate that sodium and magnesium sulphates completely evacuated the large bowel without affecting the passage through the small intestine. The condition of dyschezia was more common than was generally supposed. It was important to attempt to evacuate the bowel even though no desire was felt.

Dr. WILLIAM EWART (London) believed that fulness of the large bowel with fæces was of less importance than fulness with a proper amount of gas. He regarded the cæcum as a compressed air chamber. He pointed out the importance of adequate physical exercise, instancing the comparative rarity of constipation in labouring men and its frequency in women.

Dr. G. HERSCHELL (London) pointed out a simple method of tracing the passage of the food along the intestine where the use of X rays was not practicable; it was by giving 4 or 5 grains of carmine with a test-meal. If no carmine appeared in the motion next morning a small injection should be given. If it washed away carmine the passage through the colon was normal; if not, there was delay in the upper part of the colon. He emphasised the importance of colitis and discussed its production and its diagnosis. He referred to the value of the sigmoidoscope in the diagnosis of constipation.

Dr. J. GUELPA (Paris), whose remarks were read owing to his absence through illness, argued in support of the occurrence of auto-intoxication. One use of purgatives apart from their evacuation effects was to assist in the disintoxication of the organism.

Dr. STUART A. TIDEY (Montreux) stated that constipation was so common as to be universal in conditions of social aggregation. The less gregarious the population was, the less constipation was present. He instanced the rarity of constipation in peasant populations.

Dr. J. HADDON (Hawick) briefly discussed some points in the physiology of digestion, after which Dr. GOODHART replied. In spite of the criticism of his position in regard to auto-intoxication he was still of opinion that its importance was greatly exaggerated.

The Value of Percussion of the Vertebræ in Diagnosis.

Dr. EWART then gave a demonstration on this subject. He used a pleximeter of simple type, modified from Sansom's form of the instrument. He pointed out that every object percussed has its own intrinsic note, and that each vertebra has its own note, which is of value in the diagnosis of disease. He showed the outlines of the normal percussion pictures on the back of a normal subject and demonstrated their significance by means of diagrams. The

second, third, and fourth dorsal vertebræ he called the tracheal vertebræ; they gave a resonant note owing to the underlying trachea. The fifth was dull and had a square patch around it, extending more to the right than the left; this area was of importance since it corresponded to the infra-tracheal glands. The ninth dorsal vertebra was always dull and beneath it the left auricle was situated. The twelfth, being over the liver, and the second lumbar over the pancreas were also always dull. He drew attention to the gastric nucleus of resonance on the left side and to Piorry's nucleus of dulness on the right.

SURGERY.

THURSDAY, JULY 28TH.

President, Sir VICTOR HORSLEY (London).

Instrument for Suturing Broken Bones.

Dr. DEPAGE demonstrated an instrument he had devised for suturing broken bones. The two fragments are first perforated by a drill, which is provided with an eye near the point. As soon as this shows on the other side of the bone it is threaded with a wire, to which is attached a long screw provided with a head at its other end. The drill is withdrawn, drawing the wire and the screw after it. A small nut is then threaded on to the screw, and by means of a special spanner it is screwed down until it presses firmly against the bone, and the excess of the screw is then cut off with a pair of nippers. Dr. Depage showed how the instrument was employed, and so far as could be judged from a short examination of the instrument it seemed to provide a speedy and trustworthy method for uniting the fragments of a fracture.

Professor THEODORE KOCHER (Berne) opened a discussion on

The Surgical Treatment of Exophthalmic Goitre.

He commenced by saying that recent scientific progress had furnished new methods which gave increased exactness both in diagnosis and in prognosis. In diagnosing exophthalmic goitre it was essential that the blood should always be examined, and it was especially important in those cases in which the surgeon was not quite sure whether the symptoms were not due to mere nervous disturbance. He had had the blood examined in 300 cases of exophthalmic goitre and had found such changes as made it possible for the surgeon to be sure of his diagnosis. As a rule, in this disease, with very few exceptions, the number of leucocytes was diminished to a great extent, from 7000 to 3000, or even less. But it was important to note that the diminution was only in the polynuclear cells, which might be as few as 1260 in the cubic millimetre. On the other hand, there was an increase in the lymphocytes, from 20 per cent. to 50 per cent., or even more. This increase was, however, not absolute, but occasionally they might be 2000 to 5000 per cubic millimetre. This change in the composition of the blood had been confirmed by several writers, and it had become very valuable, especially in doubtful cases. The prognosis was also benefited by this discovery, for it was known that after operation the blood altered and soon became normal. Analogous changes in the blood might occur in other diseases, as in some goitres, but there was a difference. In myxœdema the leucocytes increased in number and there might even be a leucocytosis. The theory had been put forward that lymphocytosis was only a nerve reaction, and it was suggested that it was due to the action of the vagus. There had been a great tendency to associate with Graves's disease all cases of hyperthyrosis, but this was wrong, for hyperthyrosis might occur in other conditions, as at puberty, during pregnancy, and after some of the infective diseases enlargement and over-action of the thyroid gland might occur. In Graves's disease the proportion of red corpuscles and of hæmoglobin was unchanged, but there was a definite alteration in the coagulability of the blood. The rate of coagulability was much slower and the intensity of the clot was also much less. On the other hand, in myxœdema the rate of coagulability was much greater and the clot was more intense. Similar changes of the blood, both as to the leucocytes and as to the coagulability, could be induced artificially by injecting thyroidin or thyroid extract, or administering one of them by the mouth. Iodine, too, when administered was followed by similar blood changes, but iodine did not produce this change if the thyroid gland had been previously removed, so it was clearly only through the thyroid gland that iodine had this effect. In myxœdema iodine never produced such an effect. If iodine was given in large doses in nervous patients suffering from goitre a good opportunity was afforded of studying Graves's disease arising on the basis of ordinary goitre; but Graves's disease could not arise if no thyroid was present, however much iodine were given. But if thyroidin were administered the symptoms of Graves's disease were produced. All these observations supported the theory that in Graves's disease there was an excessive action of the thyroid gland. Experiment had shown that it was possible to influence, through the nervous system, the action of the thyroid gland. If the superior laryngeal nerve were cut, and the peripheral end were stimulated, the secretion of the thyroid gland increased. It was probable that nervous impulses arising from mental emotion also could increase the action of the thyroid, so that Graves's disease might aptly be called a "diarrhœa of the thyroid." It was possible that the beneficial effect of ligature of the thyroid artery might be in part due to the division at the same time of some secretory nerves, for the effect was much more marked if the whole superior peduncle on both sides were divided. If we acted on the idea that the symptoms of Graves's disease were due to excessive action on the part of the gland, caused by irritation of the nervous system, it would be important to remove all sources of irritation. Rest in every form was what must be insisted upon. The patient should do nothing, and the surgeon also should do nothing. It was of extreme importance that no iodine should be given; its administration might give rise to severe symptoms, especially if the patient was much predisposed. Diet was important, for the food should not contain substances rich in iodine. Care should also be taken that the patients were not sent to the seaside, where they nearly always got worse. He had seen patients with Graves's disease who had visited the seaside and had come back emaciated and in an extremely nervous state. Care should also be taken with patients who had swelling of the thyroid gland after passing through an infectious disease, for they were in a condition to develop Graves's disease. All these remedial measures, however, were not sufficient in most cases to cure exophthalmic goitre, for changes occurred in other organs—the heart muscle, the kidneys, and the pancreas. With the affection of the pancreas glycosuria often occurred. As to the surgical treatment, there were practically two measures which might be undertaken—either the influence of the nervous system might be more or less completely cut off or partial excision might be done. It was of extreme importance that all the organs of the body should be examined for organic change before the more severe operation on the gland was undertaken. Up to the present he had operated on 4394 cases of disease of the thyroid gland, and of these there were 469 cases of Graves's disease. But as several of these cases needed more than one operation there were 619 operations; for the same case might have ligature of the artery done first and then later excision might be performed. The total mortality of the cases of Graves's disease had been 3·4 per cent. and the death-rate had steadily gone down. It was 5 per cent. at first and lately it had been 2½ per cent., and in the last 72 cases only one died. That was a mortality of 1·3 per cent., and it might be lowered. For ordinary goitre the mortality was between ¼ and ½ per cent. The only fatal case in the last 72, as mentioned already, was a young woman who had nephritis, and was operated on only at the special request of the patient and her friends. She should not, in fact, have been operated upon. The surgeon must be very careful as to the contra-indications for operation. Mental shock especially must be avoided, and the best method of doing this was to simulate an operation one, two, or even three times, the patient being told she should have some inhalation, so that when the operation came she would have no fear. If the pulse was irregular it generally meant disease of the heart, either of the ganglionic cells or the muscle substance. In cases where the pulse was irregular he preferred to postpone operation. When glycosuria was present as a result of Graves's disease he had seen benefit result from trypsin. If the specific gravity of the urine was low the surgeon must beware of nephritis. A more dangerous complication still was status lymphaticus. The rule, therefore, should be never to

operate on cases with organic disease, but he himself had operated on some cases complicated with organic disease. In some of these a perfect cure of the exophthalmic goitre had resulted, and even the signs of organic disease had disappeared. When physicians and those in general practice recognised the danger of allowing these patients to remain without surgical treatment until they were in a serious condition they would not take upon themselves the risk of delaying operation; careful and early operation would give excellent results, but it was not fair to the surgeon that he should be called upon to deal with wreckage.

Dr. HECTOR MACKENZIE (London) believed that most of the symptoms of exophthalmic goitre were closely and causally related to over-action of the thyroid gland. By experiments on monkeys and dogs, and by observation of human beings, they knew well the symptoms of excess of the thyroid secretion, which resembled the symptoms of Graves's disease. In man exophthalmos had not been seen as the result of administration of thyroid extract, but it had been met with in monkeys and in dogs. Histologically, the characters of the thyroid gland in Graves's disease were identical with those met with in compensatory hypertrophy. It had also been proved that there was a distinct increase in the amount of iodine in the gland in Graves's disease in nearly all cases. We were justified, therefore, in thinking that the gland was the chief cause of the disease. The severity of the symptoms was not proportional to the size of the gland, for often in the worst cases the gland was only moderately enlarged. As to the cause of exophthalmic goitre, he pointed out that very frequently it appeared to be due to a mental strain, and the symptoms closely resembled those of severe fright; it had been suggested that the severe mental strain had given rise to some toxic substance, which had been carried by the circulation, and had stimulated the thyroid gland to increased action. Sufficient attention had not been paid to the fact that in a very large proportion of fatal cases of exophthalmic goitre marked enlargement of the thymus gland had also been met with. In one case he had found a thymus which weighed three ounces. In some cases hyperplastic swelling of the bronchial and cervical lymphatic glands had also been met with, and the status lymphaticus frequently co-existed with Graves's disease and had been found in fatal cases. With such an etiology, he did not believe that removal of a part of the thyroid would cure the disease, and he himself had seen no case submitted to surgical treatment which could be considered really cured. At St. Thomas's Hospital 13 cases had been operated upon; of these, 5 were improved, 3 were *in statu quo*, and 5 died directly as the result of the operation. Of the 5 cases in which improvement had occurred, 2 had no exophthalmos and 3 still had exophthalmos. Results such as these were decidedly discouraging. When he considered the results shown by Professor Kocher's statistics he could only conclude that Professor Kocher had not had before him the same kind of cases as those treated in London. He would like to know how many cases were not operated on, for other statistics of operations showed a much higher percentage of deaths. With regard to medical treatment, 36 per cent. of hospital patients recovered completely, and not more than 20 per cent. terminated fatally. The statistics for private patients were better still, and he did not despair of finding some antidote which would be capable of curing the disease.

Mr. H. A. BRUCE (Toronto) offered his personal experience in the matter. His first 20 operations all recovered, and then one case died from pneumonia, and another, which was in the most acute stage of exophthalmic goitre, died and was found to have an enlarged thymus. He had collected 1055 cases, and of these 4 per cent. died as a result of the operation. In 16 per cent. a complete cure followed, and 85 per cent. of the patients were able to resume their ordinary occupations. He considered these results compared very favourably with those of medical treatment. He had not found local anæsthesia suitable to the operation. He employed Crile's method. (See below.) The patient was told that he would require inhalation treatment before the operation, and every morning he was given to breathe some spirit of ether for a short time. Then a morning was chosen when the patient was not in the least nervous, and an injection of morphia was given 20 minutes before the time of operation. In this way the shock was minimised and the risk much reduced.

Mr. G. HEATON (Birmingham) believed that there were many cases which simulated Graves's disease in which operation would give a very favourable result. If these cases were included, the great divergence of the statistics of results would be explained. In true cases of Graves's disease delay was harmful, for operation in early cases had a good prognosis, but surgeons seldom saw these early cases. When cases were seen late, the risk was much greater and the surgeon should choose his cases. It was in the acute and severe cases that a surgeon was most commonly asked to operate, and these were the very cases which should not be operated upon.

Mr. ROBERT CAMPBELL (Belfast) agreed that there was great diversity of opinion on this matter. In this country physicians, on the whole, seemed to be more in favour of operation than surgeons. He considered that there were two forms. In the first form, which might be called primary, the symptoms were well marked and the disease progressed rapidly. In the other form, the symptoms developed years after an enlargement of the thyroid. He had had six cases of the primary form and all these cases he had treated by partial thyroidectomy. For the anæsthetic he preferred ether and morphia. In one case he first removed half of one lobe and then half of the other. He agreed with Professor Kocher as to the harmful results of a stay at the seaside. What they wanted to know was the mortality of the disease *per se*, and to what extent the disease incapacitated for ordinary work.

Dr. R. KENNEDY (Glasgow) had observed in one case that after excision of half of one lobe the tendency to protrusion of the eyeball on that side became less. He considered that the dangers of excision of the half thyroid had been exaggerated. He had given up the use of general anæsthesia and preferred to use cocaine well diluted, half a grain of cocaine being used in a solution of ¼ per cent. He had seen the temperature rise after the operation to 102° but without any other manifestation of sepsis. He always drained the wound. He looked upon acute cases as dangerous, and he considered that patients should be kept at rest until they had been brought to a more suitable condition for operation.

Mr. GILBERT BARLING (Birmingham) urged that the disease must be considered from a medical as well as from a surgical point of view. In connexion with what Professor Kocher had said as to the diminished coagulability of the blood, he might mention that he had lost one patient with complete thrombosis of the femoral artery. He would like to operate earlier than was usual at present.

Mr. DONALD ARMOUR (London) never refused to operate in cases of Graves's disease. He preferred excision except in very severe cases. For the anæsthetic he preferred chloroform preceded by morphia. On one point he insisted strongly, and that was that the gland must not be handled or even swabbed roughly by the assistant. He employed saline injection during the operation and after, and he used drainage less now than at first. He had had one death, but all the other cases had been improved by the operation.

Mr. EDWARD DEANESLY (Wolverhampton) believed that as symptoms of Graves's disease often supervened on ordinary goitre differences in the statistics were easily produced, but he considered them all to be cases of Graves's disease. The exophthalmos was never completely cured by the operation, but the tachycardia disappeared.

Mr. WALTER G. SPENCER (London) believed that in severe cases it was sometimes sufficient to divide the isthmus of the thyroid gland under gas. In one case of Graves's disease he had operated four times, and the patient was ultimately much improved.

Mr. W. THELWALL THOMAS (Liverpool) considered that it was very rare for exophthalmos to complicate ordinary goitre.

Mr. E. W. HEY GROVES (Bristol) described a case of a girl with tachycardia and other symptoms of exophthalmic goitre who had one side of the thyroid gland removed. As the result of this operation very great improvement occurred.

Professor GEORGE W. CRILE (Cleveland, Ohio) read a paper on

Certain Factors which Influence the immediate Results of Surgical Operation.

He explained that his paper dealt with the problem of operating on patients who had some severe handicap. These might be divided into those who were impaired (1) by infection; (2) by anæmia; (3) by shock; and (4) by psychic

influence. He discussed these topics especially with reference to their effect upon the brain cells and from the restricted point of view of the immediate operative results. The mechanism of these cells was very delicately balanced, and their metabolic processes were the highest in the organic scale, and therefore they need not be surprised to find that they were very sensitive to harmful influences. In the early stages of acute anæmia, of shock, of fear, and of strychnine poisoning there was an increase in the size of the cells and in the amount of Nissl substance. This probably indicated an increased functional activity of cells. In toxæmia this stage was not seen. In the later stages of such cell changes, whatever the cause, the morphological alterations were similar in shock, in anæmia, with toxins, and with fear. In uncomplicated surgical shock in animals of various grades of severity, produced by trauma under ether anæsthesia, in which the anæmic factor was wholly excluded by transfusion, there were corresponding changes in the structure of the nerve cells in all parts of the brain, and an alteration in their reaction to the Nissl stain as well. The structural changes of the cells included alteration in the absolute size of the cells, in the size relation of the nucleus and cytoplasm, in the membrane surrounding the cell and the membrane surrounding the nucleus, and finally in the general contour of the cell. As to the gross size, the increase varied from slight to even eight times the normal. In the normal there was a certain relation between the size of the nucleus and the remainder of the cell. In shock the nucleus became relatively larger. In the normal the membrane surrounding the cell and that surrounding the nucleus always presented an unbroken continuity; in severe shock these limiting membranes might be extensively ruptured, affording no restraint to the forces that produced distortion of the cell structure. In extreme cases, the cell completely lost its contour and presented the appearance of a disorganised mass of protoplasm. At first there was an increase in the reaction to the Nissl stain, but later the reaction diminished, and finally there was none. But even in cases of fatal shock only a certain proportion of the cells were thus altered. When the nucleus in the cell body became so altered as to leave an undifferentiated mass of protoplasm the cell was certainly dead, and would never regenerate. The gravity of a given case of shock was indicated by the percentage of cells that were thus broken down and killed. The damage of pure trauma without anæmia was shown in cells of all parts of the brain, but the spinal cord was little, if at all, affected. When anæmia, produced experimentally, was allowed to act upon the brain, the appearances would depend upon the duration of its action. This was a fact of great clinical importance. If the anæmia were sufficiently prolonged the cell was killed; therefore patients should not be allowed to continue long enough in a state of anæmia to reach this fatal stage. It was important that the various parts of the brain were not equally affected, for the cerebral cortex suffered more than the medulla. By experiments on the action of infection on the brain cells equally important results were obtained. Several methods of producing toxæmia were employed; in all the same destruction of the brain cells took place. He had also studied the question as to whether uncomplicated fear caused morphological changes in the brain cells. Uncomplicated fear in rabbits caused widespread morphological changes in the brain cells, especially in those of the cortex of the cerebellum. Trauma, anæmia, infection, and fear, singly or in combination, damaged the brain cells, and so influenced the immediate surgical risks. Patients attacked by any of these factors had a decreased margin of safety. This reduced margin of safety might be partially restored by certain methods, relating especially to the anæsthesia and to the operative technique. In some experiments as to the relative shock of nitrous oxide and oxygen anæsthesia on the one hand, and ether anæsthesia on the other, the number of cells destroyed in the ether series were not less than four times as great as in the nitrous oxide series. They must therefore conclude that either nitrous oxide acted as a protective against shock or ether predisposed to shock. In a series of 150 cases of acute perforated appendicitis, half of which were anæsthetised with nitrous oxide and half with ether, in all respects the nitrous oxide patients did better, both in pulse-rate, in nausea, and in vomiting. He believed that in a few cases ether might impair the patient sufficiently to cause death. Shock, fear, and anæmia were in a great degree controllable. As to surgical shock, if they would prevent it they must first understand the cause. The causes of shock were fear and adequate trauma. The factor of fear might be almost wholly excluded by management of the patient and in part by the administration of morphine or some similar substance. The other factor producing shock (trauma) might be excluded by interrupting the physiological connexion between the brain and the field of operation by the use of local anæsthesia. By excluding both the psychic and the traumatic factors shock itself might be excluded. The factor of anæmia might be completely controlled by the direct transfusion of blood, provided it was done before there was destruction of the brain cells. These principles might be illustrated by certain types of cases. In cases of senile and diabetic gangrene they had handicapped patients. The practice in these cases would be gas and oxygen anæsthesia, while in younger subjects morphine and scopolamin might be needed to protect the cortex against fear. In the aged senility alone was sufficient protection against fear. Infiltration anæsthesia of the skin should be employed, with intra-neural anæsthesia of nerve trunks, no tourniquet, sharp division of the soft parts to the bone, gentle retraction of the flap, tying all vessels in continuity, and maintaining a dry field. Since following this plan he had amputated 12 times for gangrene of the leg without a death. A study of 120 operations for Graves's disease convinced him that in this condition there was hypersensibility to trauma and to fear; therefore it was necessary to exclude the psychic factor and to anæsthetise the field of operation with cocaine as carefully as though no inhalation anæsthesia were being given. Thus the central nervous system was completely cut off and no shock followed. This technique had wholly altered the immediate operative results. In cases of increased intracranial tension threatening total anæmia of the brain it was important to maintain a high blood pressure until the intracranial tension was relieved. Therefore, if the patient was nearly comatose no general anæsthetic should be given. Cocaine might be used as an anæsthetic, but if a general anæsthetic were needed a momentary nitrous oxide and oxygen anæsthesia, which did not lower the blood pressure, should be employed. Patients handicapped by a seriously depressed vitality from long-continued infection, or by starvation or loss of blood, might be reclaimed in a remarkable manner by direct transfusion of blood. With regard to post-operative neurasthenia, in many cases an operation led to nervous disturbance for several months after. This harmful mental effect could be minimised by giving morphine and scopolamin prior to operation, by making the least possible show of preparation, by using nitrous oxide and oxygen anæsthesia, and in some cases by employing local as well as general anæsthesia. Inasmuch as it was now established that brain cells might be morphologically altered by psychic and by traumatic stimuli, and that the psychic stimuli might be excluded by morphia and special arrangements, and the traumatic stimuli by cocaine blocking, it followed that the brain might in many operations be wholly isolated from all impulses so that no post-operative nervous impairment followed.

ANATOMY.

THURSDAY, JULY 28TH.

President, Professor ARTHUR KEITH (London).

Case of Agnathia and Cyclops in a Lamb.

Dr. R. J. GLADSTONE (London) demonstrated with specimens and diagrams a case of Agnathia and Cyclops in a Lamb, in which all the parts above the level of the Hyal apparatus were distorted. The pharynx ended blindly above in a recess corresponding to the posterior nares, and in its anterior wall were placed a rudimentary palate and tongue. The two cerebral hemispheres were fused together in front, the lateral and third ventricles presented a single cavity, and there was one single optic nerve. All the thoracic and abdominal viscera were normal. After discussing the occurrence of cyclops in twin monsters (cephalothoracopagus) and explaining its production through the oblique apposition of the fusing heads, the first observation of cyclops in a single monster by Huschke (in 1852) was illustrated and described, the condition evidently being produced by arrested

development of the fronto-nasal process, allowing the orbits and eyes to coalesce. Dr. Gladstone agreed with the modern view that this condition was most probably produced by some external cause acting on the growing fœtus rather than by any inherent defect in the germ.

Fissura Facialis.

Dr. GLADSTONE also showed a specimen of Fissura Facialis in a human fœtus, with a large meningocele, from which a long twisted pedicle emerged, lying in the upper part of the cleft. The premaxilla had united with the right maxilla in the open edge of the cleft. The anterior part of the skull was deficient and the brain almost entirely replaced by nævoid tissue, as usual in anencephalic monsters.

Structure of the Heart in Birds.

Dr. IVY MCKENZIE (Glasgow) gave a demonstration of the results of recent researches into the structure of the heart of birds which had been carried out in coöperation with Dr. Jane Robertson. While unable to find any trace of an *a.v.* bundle, completely novel structures of two distinct types were observed: 1. Small glomeruli, composed of masses of epithelioid cells, on the nerve trunks lying in front of the commencement of the aorta. A few of such bodies were found also in the neighbourhood of the superior vena cava. They lay embedded in dense connective tissue and were not connected in any way with the nerve ganglia. They had a rich nerve-supply of their own. 2. Cushion-like masses of ill-differentiated muscular tissue grouped around the bases of the cusps of the aortic and pulmonic valves. In these the muscle cells were spindle-shaped, narrow, and feebly striated, and were embedded in a dense cellular matrix. They had no specially notable nerve or blood-supply. The authors, while advancing the theory that these tissues might represent the remains of the bulbus cordis, recognised that the latter was probably represented wholly by the infundibulum, as had been proved in other hearts, and recognised further that the disposition of this tissue equally around the bases of the cusps of *both* vessels was against the theory that it was a vestige of the bulbus, as the torsion and atrophy which took place there would result in a more unequal distribution of this new-found tissue. They pointed out also that any idea that the masses surrounding the valves might be concerned in producing constriction of the orifices was negatived by another detail in their structure, for it was shown that the fibres did not form a continuous ring, being arranged in little whorl-like masses. While unable to assign a definite function to these two peculiarities, the authors pointed to their importance in light of recent physiological researches which had shown clearly that the ordinary electrical responses which could be elicited in the mammalian and reptilian heart were completely absent in the bird's heart.

The PRESIDENT remarked that the total absence of the *a.v.* bundle in the bird's heart must throw doubt on its being an essential factor in the synchronism of cardiac action. He suggested that when present that bundle might act as an "end-organ," coördinating the contraction of auricles and ventricles in the same way as the common flexor and extensor muscles were coördinated, and thought that these tissues described by Dr. McKenzie and Dr. Robertson might come to rank as "end organs" too.

Absence of Transverse Meso-colon.

Captain N. C. RUTHERFORD, R.A.M.C., showed a case of Complete Absence of the Transverse Meso-colon. The cæcum was seen to be enormously dilated, with the ileo-cæcal valve placed on its upper surface above the level of the umbilicus. The colon took a sharp U-shaped bend at the hepatic flexure and then ran upwards and to the left in close contact with the anterior border of the pancreas and the posterior abdominal wall. The great omentum was attached along the posterior abdominal wall below the level of the gut, so that when the omentum was turned up in the earlier stages of the dissection the transverse colon could not be seen. Another notable point was that the splenic flexure was placed some distance from the spleen, being fully 3½ inches in front of it and to the right. The explanation of the condition offered was that it was due to a shortness of the primitive mesentery of the gut.

Muscle of Treitz and Plica Duodeno-jejunalis.

Mr. P. T. CRYMBLE (Belfast) gave a demonstration by specimens and lantern-slides of his observations of the Muscle of Treitz and the Plica Duodeno-jejunalis in 53 subjects. He first pointed out the discrepancies in the description of the attachment of the muscle to the diaphragm in current text-books. He always found that it was attached either to the right crus or to the undivided surface behind the œsophageal opening. The original drawing of the muscle and its description by Treitz were given. He found that it was always possible to distinguish three distinct parts: a lower, composed of involuntary muscle fibre, attached to the last part of the duodenum; a middle, partly tendinous and partly elastic; and an upper, of voluntary muscle, attached usually to the right crus of the diaphragm. He suggested that the upper part would contract on contraction of the diaphragm, and thus keep the upper end of the duodenum fixed in position during respiration. Several diagrams were shown (some from Poirier and some his own) to show the change in the position of the muscle before and after the rotation which produces the duodeno-jejunal flexure takes place, and on the strength of the relation of the muscle to the trunk of the superior mesenteric artery before and after that rotation he advanced the theory that the muscle itself played a part in bringing the rotation about, being comparable in that respect to the gubernaculum testis. In demonstrating varieties of the plica duodeno-jejunalis he pointed out that in the majority of his cases the fold lay just to the right of the inferior mesenteric vein, but that in some cases it was drawn over the vein by its fusion with the transverse meso-colon and that in a few cases it was absent altogether. The muscle of Treitz was always found to lie within this fold, and when the fold overlapped the vein the muscle itself always retained its relation to the medial side of the vein.

An interesting discussion followed Mr. Crymble's paper, in which the PRESIDENT, Professor JOHNSON SYMINGTON (Belfast), Professor W. WRIGHT (London), Professor D. WATERSTON (London), and Dr. RUTHERFORD (London) took part, all agreeing on the importance of definite description and terminology in a region of such practical importance.

The section then accorded a hearty welcome to Professor RAMSTROM (Upsala), who read a most interesting paper, in excellent English, on

Emanuel Swedenborg as an Anatomist.

His main theme was to show that Swedenborg, though most widely known as a mystic seer and writer on religion, had penetrated deeply into many branches of natural science, and had made speculations so thorough as to lead him to some conclusions which were only confirmed at a later date through methods of highly developed technique. After passing Swedenborg's published work on the nebular hypothesis, on geology, and on palæontology under review—work which alone would have entitled him to an honoured place in the annals of science—Professor Ramstrom then gave a detailed account of his publications in the realm of organic nature, dwelling particularly on his statement of a theory of epigenesis (afterwards substantiated and elaborated by Caspar Wolff), and his localisation of the sensory and motor areas of the cerebral cortex, confirmed, in the main, by all later researches. He claimed that Swedenborg must have conducted considerable researches and experiments on his own account, and as he left little or no actual record of these Professor Ramstrom then proceeded to give in conclusion the results of careful and elaborate research he himself had conducted to show how little there was in contemporary literature on which Swedenborg might rely for the facts in support of his theories.

Professor G. D. THANE (London) congratulated Professor Ramstrom on his brilliant paper and conveyed the best thanks of the section to him for it. He drew an interesting comparison between Swedenborg and another great constructive philosopher, Herbert Spencer. He thought that perhaps the reason why Swedenborg's truly scientific work had not received the attention it deserved lay in the fact that after first confining his attention to the phenomena of natural science he went off into the supernatural, and also that, unlike Linnæus and Caspar Wolff, he had left no great record of actual observations.

Mr. R. H. SCANES SPICER (London) contributed a paper on

The Normal Orthograde Posture.

He showed a large number of photographs and plates illustrating ancient and modern types of what might be regarded as normal and abnormal postures. He criticised severely many of the postures advertised as attainable by various modern "Schools of Health Culture." To obviate the

possible dangerous results of these (impairment of respiration in particular), and to guide those entrusted with the physical training of the young, he thought that anatomists and physiologists should combine to determine on what is definitely the normal orthograde posture, so that it could be aimed at and retained by training. He emphasised the many ill-effects (especially, in his own experience, in the organs of voice and respiration) which were clearly traceable to the habitual assumption of faulty posture.

An interesting discussion followed Mr. Spicer's paper, in the course of which the PRESIDENT corroborated the serious ill-effects which sometimes follow the ignorant application of the commonly prescribed exercises in modern schools of health culture. He knew from his own experiences cases of emphysema of the lungs and heart disease which had been the result of these. His own impression was, however, that it would prove well-nigh impossible to describe a "normal," that there was no single "ideal" posture, but that each individual must be studied separately and advised accordingly.

Professor A. ROBINSON (Edinburgh) pointed out how materially the posture varied naturally with age, and thought no useful conclusion could be come to without the most elaborate data, and that no "hasty" definition, even in face of the prevalence of a most regrettable amount of quackery, would be of any avail.

The PRESIDENT and Professor P. THOMPSON (Birmingham) agreed entirely with Mr. Spicer in declaring the subject one of vital importance in view of the detailed attention now being directed to the medical supervision of school children.

Methods of Preservation of Anatomical Material.

The section then entered on a discussion of the Methods of Preservation of Anatomical Material in which many members took part and in which a great deal of very useful information emerged, so much so that the section resolved to adjourn to the following morning, when an informal meeting took place and the discussion was continued.

BACTERIOLOGY.

THURSDAY, JULY 28TH.

President, Dr. CHARLES J. MARTIN (London).

The Pathological Section combined with the Bacteriological Section for a joint discussion on

Complement Deviation Methods in Diagnosis.

In the regrettable absence of Professor WASSERMANN (Berlin), who had consented to open the discussion, his paper was read by the honorary secretary of the section. It was entitled—

The Diagnostic View of the Complement Fixation Method.

He first dealt with the nature of the reaction—viz., that antigen could only unite with antibody in the presence of a third body complement, which was then fixed and unavailable for sensitising a second antigen-antibody reaction. If complement was linked, fixed, or deviated, both antigen and antibody would be present. Bordet and Gengou showed first that complement was deviated by bacteria and immune serum, but it was later shown that extracts of bacteria were as efficacious as the bacteria themselves. Owing to the impossibility at present of growing the treponema pallidum outside the body Professor Wassermann used as antigen an extract of the liver of a syphilitic fœtus, which contained large numbers of the organism. The substance extracted was soluble in alcohol and ether, and was therefore like fatty substances and lipoids. Although extract of normal organs acted as antigen in many cases, it followed unconditionally from the nature of the reaction that extract of syphilitic liver must be more reliable than extract of normal organs. Many modifications had been made with the view of simplifying the test and making it more delicate, but Professor Wassermann thought that these modifications made the test *too* sensitive. He purposely made the test not too sensitive, and as a consequence out of 10,000 examinations he had not made one false diagnosis of syphilis. In his opinion, the modifications were not to be recommended. In order to obtain reliable results both the reagents and the technique should be faultless. False results were obtained if unheated serum was used and a positive result might be obtained with a normal serum. Probably all spirochætæ liberated lipoids from the liver cells and therefore one would expect to obtain positive reactions in all diseases due to these parasites; and this was the case. Cases of malarial infection frequently gave a positive reaction if the blood was taken at the time when the parasites were present in the blood. Complete reliance could not be placed on the serum diagnosis of syphilis if the patient had suffered from a malarial attack within three months or any acute febrile disease within one month. In the absence of protozoal infections or acute febrile disease a positive reaction was certain evidence of syphilis. A negative reaction, however, was not *certain*, although the diagnosis would be correct in 90 per cent. of cases. Examination of the serum could show if sufficient treatment had been given and a negative reaction appeared after mercurial treatment, but a positive reaction reappeared if not enough treatment had been given. After vigorous treatment only 20 per cent. of cases showed a positive reaction. Ehrlich's new treatment appeared to be remarkably rapid and efficacious, but would have to be controlled by serum examinations to see if a positive reaction returned or not. All treatment must in future be guided and judged by frequent determinations of the serum reaction.

Mr. H. WANSEY BAYLY (London) emphasised the importance of the epoch-making discovery of the serum diagnosis of syphilis, for which mankind will ever be indebted to the genius of Professor Wassermann. As a result of over 1000 examinations in the London Lock Hospitals he came to the conclusion that Wassermann's original technique was more reliable than the so-called simplification introduced by Hecht, Bauer, Stern, or Fleming, where variants were substituted for constants, and he considered that the most essential of all conditions in a *comparative* test such as this was that all factors, except the one tested, should be constant. He followed Captain Harrison's method of using two amounts of complement so as to arrive at a roughly quantitative measurement of the complement-fixing power of the serum, and in this way had investigated the comparative value of the different methods for the administration of mercury. Pill treatment produced no sign of hæmolysis, even in the tube containing the double dose of complement, in under six months; whereas frequently one three months' course of inunction or intramuscular injections showed a distinct effect of treatment. He concluded, therefore, that inunction and injection were more potent than treatment by the mouth. He had obtained as good results with an alcoholic extract of rabbit's heart as with an extract of syphilitic liver. He found that 10 per cent. of human sera contained no substance producing lysis of sheep's red cells, and that the complement content of human serum varied very considerably, and that the results obtained by methods depending on fresh human serum for these factors could not be depended on. He considered that the history of the Wassermann reaction was too recent to justify the statement that even a succession of negative results proved complete and permanent cure and that no late manifestation would ever occur. He believed a positive reaction to be of the greatest possible value for diagnosis and as an indication for continued treatment.

Professor R. MUIR (Glasgow) discussed the properties of complement in general, especially in relation to the question of fixation. He pointed out that just as complement was notoriously susceptible to the influence of physical agencies—e.g., heat, light, &c.—it was no less strikingly liable to absorption by various substances in solution or in suspension. The disappearance of complement in any test might be due to (*a*) actual destruction; (*b*) inhibition of action; and (*c*) actual fixation. With regard to the last mentioned he classified the chief conditions of occurrence under the following headings: (1) fixation in presence of an antigen and its antisubstance; (2) fixation in the syphilitic reaction of Wassermann; (3) fixation in the presence of various organic substances in solution or colloidal suspension; and (4) fixation in the presence of comparatively gross particles suspended in the fluid. He gave an account of his own observations in regard to fixation by antigen and antisubstance in the case of hæmolytic, bacteriolytic, and precipitating sera and testified to the extreme delicacy and usefulness of the test when carried out by quantitative methods. He considered that the Wassermann reaction was an example of fixation of quite another nature, as here no true antigen was present, and he considered it a matter of

regret that Professor Wassermann had not drawn this distinction and had not considered the nature of the reaction when syphilitic serum was used along with lipoids, &c., derived from other sources than syphilitic extracts. In this case he (Professor Muir) considered that no antigen in the strict sense was present. He pointed out the complexity of the reaction in syphilis and how the result might depend upon slight variations in each of the three constituents used. He referred to the importance of the physical state of the substance fixing complement in all the conditions mentioned and raised the question whether an immune body might not lead to the fixation of complement in some such way. The evidence that a true complementophile group was present in an immune body was unsatisfactory and he considered that the use of the term "amboceptor" was not justified.

Dr. J. HENDERSON SMITH (London) drew attention to the fact that the attraction of sensitised corpuscles for complement might be accentuated or diminished in various ways—e.g., by variations in temperature, salt concentration, or alkalinity or acidity of the fluids in which the cells were suspended. Thus in a mixture of a certain degree of acidity hæmolysis did not take place, although all the necessary factors were present. It had been shown, however, that in some conditions, where inhibition of lysis was produced by acidity of the fluids, sensitised red cells though unlaked were not unaffected by the complement with which they had been in contact. If they were separated by centrifuging it could be shown that they had taken up a fraction of the complement, while a second portion remained in the supernatant fluid. Neither of these fractions was by itself capable of producing hæmolysis, but conjointly they could lake properly sensitised red cells. In complement deviation reactions only one of these fractions was deviated, a portion remaining free in the fluid. If this free portion was added to cells which were not only sensitised in the ordinary way, but persensitised by addition of the other fraction of complement laking took place readily. Both fractions of complement were thermolabile at 56° C. It was not necessary that both should be derived from the same kind of serum in order that their joint action should produce lysis. It seemed probable that if in carrying out deviation experiments with bacteria use was made of *whole* bacteria, as in the Bordet-Gengou technique, instead of extracts of the organisms, as in the method advocated by Wassermann, that not one part only but both parts of the complement were deviated.

Fleet-Surgeon P. W. BASSETT-SMITH (Haslar), with an experience of over 1000 cases, concluded that a positive reaction did not occur till at least 45 days after infection, but that men with extra-genital sores reacted earlier than those who contracted the disease in the ordinary way. The effect of treatment on the reaction was most marked, and the intermittency of the reaction was especially noticeable in cases receiving intra-muscular injections. He thought that the positive reactions sometimes obtained after a course of injections might be due to the use of defective "creams." In no case of chancroid or gonorrhœa in which syphilitic symptoms afterwards developed did he fail to get a positive reaction, and in no non-syphilitic sore was a positive reaction ever obtained. Using Fleming's method, he found that 10 per cent. of human sera failed to hæmolyse sheep's blood cells, but otherwise he found this method satisfactory and considered it an excellent check on the original technique and useful when only a small amount of serum was obtainable. He found McDonagh's modification, using unheated "test" sera examined after 24 hours from collection, to be a very efficient technique.

Dr. IVY MCKENZIE (Glasgow) spoke on the individual properties of complement and organ extract, and drew attention to the fact that 0·1 cubic centimetre of fresh guinea-pig serum might contain from 7 to 40 hæmolytic doses of complement for 1 cubic centimetre of fully sensitised corpuscles. Experiments showed that complement also varied in deviability and that fresh complement deviated to a greater extent than complement which had been kept for a while. Some alcoholic extracts fixed so much complement by themselves that the effect of the addition of serum to the extract could not be estimated by arbitrarily noting the effect on 0·1 cubic centimetre of serum complement. Turbid emulsions of alcoholic organ extracts deviated much more complement than clear emulsions. The extract used should not be lytic by itself for the test corpuscles, for the lytic property might require part of the complement in addition to the test serum to inhibit its action, and in this way a positive result might be got with a normal serum. To ensure reliable results, therefore, it was considered necessary (1) that the result should be estimated in terms of the number of hæmolytic doses of complement absorbed; (2) that the extract should not by itself exercise a strong inhibitory effect on the complement; and (3) that the extract should not be lytic for the test corpuscles.

Dr. CARL H. BROWNING (Glasgow) found that although "pure" lecithin along with syphilitic serum might absorb a certain amount of complement, the addition of cholesterin to the lecithin increased the amount of complement absorbed in the presence of syphilitic sera but not in the presence of normal sera. By themselves the lecithin alone and the lecithin-cholesterin mixture absorbed an equal and almost negligable amount of complement. Accordingly, if the addition of cholesterin to the lecithin caused an increased absorption of complement in the presence of a patient's serum, this indicated that the case was one of syphilitic infection. This method had proved to be both delicate and uniformly reliable.

Dr. J. O. WAKELIN BARRATT (Liverpool) dealt with the relation of complement deviation to carcinoma. His observations were made on mouse carcinoma and also upon human carcinoma. In the former complement deviation was obtained in some, but not all, of the cases examined, while in the latter no case of complement deviation was recorded. The appearance of complement deviation in some of the mouse cases appeared to show the production of an autotoxin or isotoxin on the part of the affected animal.

Dr. H. R. DEAN (Oxford) criticised the relative value of the various methods of preparing the extract used in the Wassermann reaction. No two specimens, from whatever source taken, will be found to be equally rich in antigen. He had never been able to demonstrate any difference between extracts made from normal and syphilitic organs in testing sera from cases of obvious secondary or tertiary syphilis, but in latent and doubtful cases he was inclined to think the watery extract of syphilitic liver to be the most delicate and reliable. He considered it absolutely essential that all new extracts should be titrated and standardised, and that it was not safe to use a fixed dose. A good extract was one showing a large difference in the dose necessary for the fixation of complement in the presence of syphilitic and normal serum, and the syphilitic should require less than half the dose required by the normal. In comparing different methods (Hecht, Bauer, Stern, and others) he came to the conclusion that Wassermann's original technique was the safer, for the reason that it permitted of the standardisation of the reagents and the putting up of adequate controls, and although the various modifications had been employed with considerable success, the evidence at our disposal was enormously in favour of the original method.

Captain L. W. HARRISON, R.A.M.C., considered that more delicate and reliable results were obtained if the test serum was only heated for 10 minutes at 55° C. Comparison between the deviating power of the same sera after heating for 10, 30, and 60 minutes respectively showed that while in florid cases of syphilis no great difference was apparent, in well-treated latent cases a considerably higher proportion of positive results occurred with sera that had been treated for 10 minutes only. He used a large amount of hæmolytic amboceptor and complement less than 24 hours old, and had not found the variation in the complement content of guinea-pig serum to be as marked as some of the previous speakers. He did not think two years long enough for routine treatment. Although simplified modifications, such as those of Hecht, Stern, or Fleming, might be of value for regulating treatment, he did not think that for diagnostic purposes they were as reliable as the original technique.

DISEASES OF CHILDREN.

THURSDAY, JULY 28TH.

President, Dr. ARCHIBALD E. GARROD (London).

Dr. C. R. BOX (London) opened a discussion on

The Diagnosis and Treatment of Infections of the Urinary Tract by the Bacillus Coli.

He said that many different pathogenic organisms had been shown to be capable, under certain conditions, of infecting the urinary tract in children. The bacillus coli, however,

was to blame in such a vast majority of the cases of urinary infection met with in ordinary practice that it seemed best to devote all the short time at their disposal to considering the recognition and treatment of its effects. Under normal circumstances the urine successfully resisted the invasion of the bacillus coli, by which it was constantly threatened. When certain incompletely known conditions were present, however, these organisms did gain entrance and swarm in the urine without causing more than a trivial local irritation. If the resistance of the parts was further weakened, or the bacilli more aggressive, inflammation was set up in the mucous membrane. This was most commonly limited to the bladder, but often extended to the ureters and pelves, and might even invade the parenchyma of the kidneys. These inflammatory conditions were most common in bottle-fed babies of the female sex, but they might occur in boys also, and at any age. In whatever part of the urinary tract the inflammation was present the urine was generally acid and contained, after the first few days, numerous pus cells and crowds of bacilli, and the local symptoms were slight. If there was cystitis only the general symptoms also were such as might escape notice. Whenever the disease spread to the pelvis, however, marked general disturbance and misery at once appeared, with a typhoid-like pyrexia, ushered in, in most of the female cases at least, by faintness, shiverings, actual rigors, or convulsions. A more or less definite tenderness on pressure over the corresponding parts of the surface of the trunk could sometimes also be made out. In the treatment of all degrees of bacillus coli inflammation of the urinary tract it was important to administer plenty of fluid and to encourage the action of the bowels. Three methods of attacking the bacteria had been extensively tried—by antiseptics, by alkalies, and by serums or vaccines. 1. Treatment by antiseptics, such as urotropine, helmitol, and salol, had been generally found disappointing, being ineffectual and apt to be followed by relapses. 2. The administration of potassium citrate in sufficient amount to render the urine alkaline and to keep it so for some weeks was very successful in the acute cases, so long as the kidneys had not become severely affected. 3. The use of serums or vaccines had given varying results, having led to speedy cure in some acute cases but not in others, and being as futile as all other therapeutic measures in those with a chronic course. The prognosis in the acute cases, when treated early, was generally very good; but if the treatment was delayed or ineffective the risk of extension of the disease to the kidney was probably considerable.

Mr. J. G. PARDOE (London) said that the more serious forms of bacillus coli infection of the urinary tract in children appeared to be of much less frequent occurrence than in adults. Autogenous infections were much less common than those due to other conditions, such as calculus in the kidneys or in the urinary bladder. Acute infections occurring apart from other conditions showed the same tendency, as in adults, to rapid and complete cure. Chronic infections occurring apart from other conditions were notable by their rarity. Chronic infections dependent upon, or occurring during the course of other conditions, tended to more complete cure than in similar circumstances in adults. The patients should be kept strictly in bed on a milk diet and a sustained course of alkalies. There should be no instrumental interference. Sandal wood oil was the best additional antiseptic.

Dr. J. PORTER PARKINSON (London) said the condition was mostly due to an ascending infection, though there appeared to be some connexion between colitis and bacilluria. Normal urine apparently inhibited the growth of bacilli. There occurred three classes of cases: (1) those in which symptoms were slight or absent with marked bacilluria; (2) severe cases in which the symptoms were general; and (3) severe cases in which the symptoms were local. He cited instances in which the temperature had fallen and the symptoms cleared immediately after the injection hypodermically of from 10 to 40 million dead bacilli.

Dr. EDMUND CAUTLEY (London) thought that bacilluria did not necessarily mean an infection of the urinary tract. The organisms might be present in great numbers without any symptoms occurring. In older girls vulvo-vaginitis was attended by involvement of the bladder only. Drugs were for the most part ineffective, though some benefit attended the use of benzoates.

Dr. GRAHAM FORBES (London) said that 56 out of 80 such cases which he had examined were due to bacillus coli. They presented the features of cystitis with ascending infection or those of a general infection. He described in detail the various pathological changes met with and the results of bacteriological investigation.

Dr. W. M. JEFFREYS (Lyndhurst) described the clinical aspect of 37 cases, of which 23 were attributed to bacillus coli. A great number displayed gastro-intestinal symptoms. Bladder symptoms were present in 23. Altogether the course presented great variety—11 only could be considered cured, six died. Several responded temporarily to vaccine, others more slowly to antiseptics.

Dr. J. MCCAW (Belfast) had the best result with alkalies; in one case where vomiting was prominent he gave 20 grains of citrate of potash in half an ounce of water by the rectum frequently with satisfactory result. Rest in bed in an even temperature and milk diet were essential.

Dr. J. S. DICK (Manchester) demurred at these cases being all attributed to infection of the urinary tract, and instanced cases of bacillus coli pneumonia as proving general infection. He found autogenous vaccine most satisfactory. It had been shown that bacillus coli grew in an alkaline medium, but this increased phagocytosis, which would explain its beneficial effects in the urine.

Dr. J. H. THURSFIELD (London) gave 40 grains of urotropin daily for six weeks. A persistent bacilluria might be attended by dangerous local or general infection at any moment.

The PRESIDENT considered the sex proclivity to the malady required discrimination; in the local infection anatomical considerations had much to do with it.

Dr. THEODORE ZANGGER (Zürich) read a paper on

The Therapeutics of Whooping-Cough.

He said that the principal reason for the want of efficacy in the treatment of whooping-cough lay in the continual change of remedies. Their motto should be: "Non multa, sed multum." They had not only to deal with a contagious disease of bacillary origin, but also with distinctly nervous symptoms of a reflex nature. To combat the infective factor he recommended hydrochlorate of quinine in a 1 to 2 per cent. solution in doses of 2½ fluid drachms administered three times a day—at 8 A.M., 2 P.M., and 6 P.M. Enquinine first recommended by Professor von Noorden, came next in efficacy and was slightly bitter, and almost non-irritant for the stomach. It was prescribed in doses of 2 to 4 grains three times a day. To combat the nervous element of whooping-cough he recommended simple hydropathic packs applied two or three times, especially towards the evening and night for from one to four hours. They should reach from the armpits to the knees and be covered with flannel. The temperature of the water should be from 52° to 60° F. (12° to 15° C.). Their sedative effect was remarkable. The result of this combined treatment had been satisfactory in upwards of 200 cases spreading over a number of years. The convulsive stage had been shortened in medium and severe cases to 20, 15, and even 10 days. There had been rarely more than 20 attacks of cough in 24 hours, and the number of attacks and their intensity decreased from day to day. There had been no fatal cases, no complications, and not one case of broncho-pneumonia.

Dr. W. ESSEX WYNTER (London) congratulated Dr. Zangger on his results and said that the mortality and complications occurred chiefly in neglected cases rather than in those under careful medical supervision, as so many people regarded the complaint as trifling and likely to run its own course. Of all modern remedies nothing approached the effect of chloretone in whooping-cough, given in 2½ grain doses three or four times a day in cod-liver oil or petroleum emulsion. Improvement was immediate and within three days the paroxysms practically subsided. He had been led to employ the drug from a consideration of its known antiseptic, anæsthetic, and sedative effects.

Professor ADOLPH D'ESPINE (Geneva) read a paper on the Diagnosis of Tuberculous Bronchial Glands by the Detection of Dulness and Bronchophony with Pectoriloquy over the First and Second Dorsal Vertebræ and Manubrium Sterni, which was discussed by Mr. F. W. GOYDER (Bradford).

LARYNGOLOGY.

THURSDAY, JULY 28TH.

President, Mr. HERBERT TILLEY (London).

The PRESIDENT announced that the papers to be read by Dr. H. S. Birkett and Mr. E. B. Waggett were so much akin that it would be wise to dovetail them and let them be discussed together afterwards; and he reminded the meeting that Dr. Birkett had come from Montreal especially to give them not only the results of his own experience, but a *résumé* of 63 different references in the literature.

Dr. H. S. BIRKETT (Montreal) initiated a discussion on

Vaso-motor Rhinitis.

He said they must confess to ignorance of its etiology. Predisposing factors included a neuropathic temperament and cold weather. There was no racial incidence. Heredity was a possible factor. He had seen cases of apparent transmission from father to son. Other predisposing causes were strain and exhaustion, mental or physical, rheumatism, and gout. Exciting causes might be either something arising within the patient—internal, or from without—external, such as pollen, dust, or the actinic rays of the sun; these might be supposed to act on a pathological nasal mucous membrane. Ballinger thought that catarrhal sinusitis predisposed, and based this view on clinical experience. Others had suggested chemical changes in the mucus-secreting glands. Acute toxæmia, generally from dietetic errors, had by some been held responsible. Four cases had been traced to malarial poisoning. But he considered that certainly three factors were always to be found: (1) a neurotic temperament; (2) a local morbid condition of the nasal mucous membrane; and (3) an irritant, internal or external. Sometimes the anterior ends of inferior turbinals were hypertrophied, but B. Fraenkel denied the specificity of this as an etiological factor, and invoked nerve irritation as the cause. Later, it was discovered that the posterior ends of the inferior turbinals, and often the middle turbinals, were enlarged. There was a large problem awaiting solution, in the relation of the sympathetic nervous system to diseases of the nose. It had recently been established that the sympathetic fibres to the nasal mucous membrane were from 5 to 10 times as numerous as spinal fibres. Possibly the sympathetic fibres were insensitive in a healthy state, but in rhinitis became inflamed. Unfortunately they had at present no technique for staining a pathological axis-cylinder. The patients were of three types: 1. Females of a slight build and nervous temperament. Characteristic of this type was the total absence of nasal obstruction or of itching of the eyes and nose. 2. Males who were good livers; these presented nasal obstruction and lacrymation. 3. These differ from (2) only in that the nasal mucous membrane was pale and stippled. The nasal flux must be diagnosed from the escape of cerebro-spinal fluid. The treatment was: 1. Therapeutic—(*a*) local, to shorten the attacks; and (*b*) general, for the neurotic condition. 2. Surgical intervention, as by galvano-cautery. Various experts had recommended the following: free scarification, tri-chloracetic acid, cold-water sprays on the nape of the neck, and mercuric iodide in nasal spray; but the most novel was the plan of Dr. Eugene Young (Manchester), who injected absolute alcohol to deaden the nerve—first the anterior branch through the cribriform plate of the ethmoid, then the branches of Meckel's ganglion through the posterior end of the middle turbinate bone.

Mr. E. B. WAGGETT (London) followed with his paper, whose chief object was to sketch out the lines of future advance. What, he asked, was the minimum of interference to be used as routine treatment? The immediate results of galvano-cautery were often so good as to be misleading, since such results were not permanent. It was doubtful whether actinic rays could initiate a paroxysm. Adrenalin, after the preliminary anæmia, caused a reactionary hyperæmia accompanied by œdema. Experiment was necessary. They would like to know, for instance, the effects of the submucous injection of (1) isotonic fluid, (2) normal serum, (3) serum of a rhinorrhœic subject on (*a*) a normal man, (*b*) a rhinorrhœic subject. Such a research as this meant one year's work. The underlying problem was, Why do some people react to poisons which leave others unaffected? The personal idiosyncrasy was most striking. Two men of similar age and physique, who had been born and bred in the same place, who had similar habits, and whose nasal mucous membranes presented similar macroscopic appearances go into the same hayfield and inhale the same pollen. One has a paroxysm: the other escapes. The time of day was a factor, and perhaps early morning urine contained convulsive, and evening urine narcotic, substances. Choosing a rhinorrhœic subject, Dunbar injected pollen toxin subcutaneously into the arm, producing typical hay fever with urticaria; this experiment failed with a non-rhinorrhœic subject. Now under the influence of pollen toxin the blood became laked, which altered the osmotic coefficient of the blood; and Sir A. E. Wright showed that a deficiency of calcium salts in the blood, by increasing osmosis, might cause urticaria. These facts, taken with the frequent coincidence of urticaria with paroxysmal coryza and hay fever, were very significant. Paroxysmal rhinitis might be a true urticaria of the nasal mucous membrane. He (Mr. Waggett) prescribed calcium salts (20 grains of the lactate daily) with success; the addition of magnesium salts was often useful, whether it cured or not. Certainly calcium lactate controlled hay fever. *Apropos* of the use of mineral salts in metabolism, examples were quoted from the animal kingdom; for instance, the reindeer must have his drink of brine. As a further subject for research, he suggested the blood chemistry of rhinorrhœics, whether their affection occurred seasonally or diurnally.

The PRESIDENT thanked Dr. Birkett warmly for the vast labour he had taken to collate his data and the valuable information it afforded, and considered that the thanks of the section were due to him and to Mr. Waggett, who had read to them the most thoughtful paper they had heard for years.

Dr. H. A. FRANCIS (London) read a paper on

The Probable Explanation of the Effect of Nasal Cauterisation in Asthma and the other Vaso-motor Neuroses.

He advocated the removal of obstructions, spurs, &c., and especially the use of the galvano-cautery. He had had no less than 86·3 per cent. of successful results. It might be argued that since the operation was small, and the result so important, suggestion played a large rôle. But he reminded them that his cases had included (1) the deliberately incredulous; (2) those who had at first been credulous but after much treatment had become hopeless; and (3) children, whose intelligence is too small to give scope for suggestion. The speaker gave instances of other diseases, all of which he considered vaso-motor in orgin, which he had cured by nasal cauterisation—angina pectoris, migraine, and Raynaud's disease; and he could lower, or, with less certainty, raise, the general blood pressure by the same means.

Mr. STUART LOW (London) noted that Mr. Waggett had emphasised the importance of the general disturbance. But the local disturbance was also important; for instance, this year, owing to a heavy rainfall, there had been less horse-dung dust and less hay fever. The speaker had obtained good results from injecting 3 minims adrenalin solution subcutaneously anywhere in the body.

Dr. R. H. SCANES SPICER (London) submitted that Dr. Francis's work was upon lines well known to all.

Dr. N. C. HARING (Manchester) had frequently found a family incidence in the North. In such cases hay fever might alternate with migraine. As regards treatment, the difficulty was to treat people with no gross intranasal lesion. To cauterise such was as illogical as to dilate the sphincter ani. He quoted the case of a woman, not hysterical, where the suggestive effect of passing a bronchoscopic tube was so marked that it staved off her asthmatic attacks, previously frequent, for a year. Then another attack occurred, and she returned with the request that the tube should be passed again.

Dr. STCLAIR THOMSON (London) asked Dr. Francis to explain or demonstrate the technique of his method of cauterisation by which he had obtained such good results.

Dr. P. WATSON WILLIAMS (Bristol) considered that Dr. Haring's case of the relief of asthma by the mechanical manipulations of bronchoscopy should not be referred to suggestion. Probably the stimulus of the tube on the bronchial mucosa acted reflexly on the bulbar centres. He considered it dangerous to rely on the use of the galvano-cautery, after which improvement is fairly constant, but cure most rare. He considered dietetic and general treatment most valuable.

Dr. HENRY LUC (Paris), in rising at the repeated invitation

of the President, protested that he had come to learn, not to teach. He endorsed Dr. StClair Thomson's appeal to Dr. Francis to demonstrate the technique of his cauterisation. It was customary to divide patients into (1) those with a gross nose lesion and (2) those without such, but he thought that many cases of (2) would on minute examination prove to belong to (1). For example, under cocaine the mucous membrane of the middle turbinal and the middle meatus often showed myxomatous degeneration, the removal of which might cure the patient of asthma.

Dr. HEMINGTON PEGLER (London) remarked that, *à propos* of the relation of hay fever to urticaria, a minute trace of honey in his own mouth produced a visible factitious urticaria of the buccal mucous membrane.

Dr. ANDREW WYLIE (London) urged the importance of correcting errors of refraction, notably astigmatism; by the cure of this he had often seen rhinorrhœa cured.

Dr. W. PERMEWAN (Liverpool) urged the claims of chemical caustics and the use of calcium salts.

Dr. IRWIN MOORE (London) endorsed Mr. Stuart Low's views as to the use of adrenalin.

Dr. G. PARKER (Bristol) had had good results from galvano-cautery of the tubercle of the septum.

The PRESIDENT said that, *à propos* of Dr. Francis's method, he himself had had excellent results from cauterisation of the septum opposite the anterior end of the middle turbinal.

Dr. BIRKETT replied, saying that he hoped to have the pleasure of furthering Mr. Waggett's scheme on the other side of the Atlantic.

Mr. WAGGETT, in reply, thanked the President, members, and visitors for the way in which they had received his paper.

Dr. FRANCIS also replied, offering to demonstrate his technique at any time. The point he selected for cautery was high up opposite to the middle turbinal. The spot, cautery of which reduced the general blood pressure, differed in different people and must be sought for with the simultaneous use of the sphygmomanometer.

Dr. W. CAMAC WILKINSON (Sydney) read a paper on

The Use of Tuberculin in the Treatment of Laryngeal Tuberculosis.

Quoting extensively from a large Australian experience, he claimed that the treatment was very useful, even in advanced cases, and almost invariably successful, even in cases of extensive ulceration. Some cases appeared to be primarily laryngeal. The ulcers could actually be watched as they healed, and these results are obtained without creasote or other drugs internally, and without open-air treatment. At the end of the treatment the patients exhibited no reaction to tuberculin, which was a proof of their cure.

Dr. WATSON WILLIAMS stated his opinion that tuberculin should be used in small doses. He personally had seen tuberculin fail in cases where sanatorium treatment had succeeded.

Dr. J. DONELAN (London) asked for the technique of the method of administration of tuberculin.

Mr. WAGGETT considered that tuberculin was useful only in cases which were chronic, that is, where there is a balance maintained between the patient's resistance and the tubercle bacillus; in such cases tuberculin would upset the balance in favour of the patient.

Dr. PERMEWAN asked Dr. Wilkinson the percentage of cures.

Dr. BIRKETT gave his Canadian experiences. Tuberculin was in universal use across the Atlantic, and he had never once seen laryngeal œdema result.

The PRESIDENT referred to cases which he personally had seen successfully treated by Dr. Wilkinson.

Dr. WILKINSON, in reply, said that in practice he began with bovine tuberculin, and if no improvement resulted proceeded to use the human vaccine.

MEDICAL SOCIOLOGY.

THURSDAY, JULY 28TH.

President, Dr. JAMES ALEXANDER MACDONALD (Taunton).

Mr. J. SMITH WHITAKER (London), medical secretary of the Association, opened a discussion on

State Sickness Insurance (Provision of Medical Attendance) as Affecting the Public Health and the Medical Profession.

He began by pointing out that the existing systems for providing medical relief for the wage-earning classes, which might be summarised under the heads of private practice, contract practice, charitable agencies, and public services, were quite inadequate for their purpose. They failed more particularly because they did not secure early treatment of disease, which would in many cases prevent prolonged sickness or permanent disability. He believed that the delay in seeking treatment was often due, at all events in the more self-respecting members of the working-class, to a fear of the cost, though it was also, no doubt, owing in part to the inertia inherent in human nature and most marked in the uneducated. On public grounds it was desirable that the State should provide facilities for the more prompt treatment of disease. The action of the State in this direction might be limited to contributing to some scheme of insurance, which, *inter alia*, would provide payment for medical treatment when required, or it might be extended to the direct provision of such treatment through the agency of salaried medical men. He considered that the general acceptance by political parties and by the press of the principle of sickness insurance showed that the more limited system of State aid was more likely to be adopted, and he thought, speaking purely in his individual capacity, that this was also the solution which would be most acceptable to the profession. It was, however, eminently a question for discussion and, in point of fact, opinions regarding it were very divergent; on the one hand, the authors of the Minority Report appeared to advocate the establishment of an army of whole-time medical officers to attend the necessitous sick, while at the other extreme were those who maintained that medical treatment should always be given by an independent medical man chosen by the patient. In support of this latter view the speaker would urge that medical treatment could not be regarded as a wholly material question; there entered into it a psychological element dependent on the mutual attitude of the doctor and the patient, the patient feeling confidence in the doctor he had freely selected, and the medical man in turn being stimulated by the evidence of the patient's trust in him. This consideration was overlooked by the advocates of the Minority scheme. The ends to be aimed at could be effectually secured by a system of national insurance which would leave to the patient the right to choose his own doctor. For the organisation of such a system the voluntary coöperation of the medical profession was essential. While the profession were the natural advisers of the Government on this question, they were also the people to be employed under the proposed scheme, and this fact, according to modern ideas, gave them a right to be consulted as to the conditions under which they would give their services. From this point of view the question of remuneration was specially to be considered. Two methods of payment had been suggested—namely, payment by fee for actual services rendered and payment of a fixed sum per patient per annum. These alternatives having been much discussed, he merely drew attention to some points that had not been brought into prominence. He doubted whether payment by fee afforded, as its advocates assumed, more scientific basis of remuneration than payment per head per annum. The fee of a medical man was not, as appeared to be assumed, a scientifically ascertained financial equivalent of his expenditure of energy in performing a given piece of work. Probably the real units of comparison were the year's work on the one hand and the year's income on the other, and the fixing of fees was merely a rough-and-ready way of securing to the professional man in full employment such an annual income as satisfied his requirements. He believed that the majority of the profession desired above all things a relative steadiness of income, and this the payment per head per annum would yield, whereas under a system of payment by fees there would not only be the fluctuations due to the number of patients who employed a given practitioner, but also the fluctuations due to variations in the amount of sickness from year to year. The essential thing was to secure that the remuneration, however calculated, should be adequate. The defects in this respect of existing forms of contract practice were due, not to the system of payment per head per annum, but to the system of employing a single doctor for each club instead of giving the patients a choice of doctor.

Dr. J. PEARSE (Trowbridge) desired to deal with the question from the standpoint of the general practitioner, who enjoyed exceptional opportunities of getting in touch with the life and thought of the working classes. He

believed that the Minority Report of the Poor-law Commission was based on unsound premisses and was unduly optimistic. It first over-estimated what had been effected by public health authorities, and then, by establishing a wholly false analogy between zymotic infections and other forms of disease, assumed that by an extension of the sphere of activity of these authorities an immense reduction of general illness could be brought about. It was quite premature to think of subordinating universally the idea of cure to the idea of prevention, and it was neither practicable nor desirable to pursue that notion by amalgamating the Public Health and the Poor-law Medical Services. If any system of sickness insurance were established, the recent experience of friendly societies showed that claims would have to be very carefully scrutinised.

Mr. C. S Loch (London), of the Charity Organisation Society, read a paper entitled,

"*Sickness Insurance: Some Pros and Contras*,"

in which he advocated a scheme for the organisation of medical treatment and the better remuneration of medical practice on the basis of the principles set out in the Majority Report. Dealing with the economics of the question, he pointed out that there were many conditions in medical practice which interfered with the normal tendency of the market to establish a grading of payment corresponding with the grading of skill. The medical fee changed, for instance, with the patient's social status, so that the richer man paid more than the poorer man for the same doctoring. Again, the existence of different scales of payment led people, in medical treatment as in railway travelling, to classify themselves according to these scales, so that the wage-earning population became accustomed to taking as it were third-class tickets for treatment. But what most differentiated medical practice from other services was the fact that the ideas of charitable people and of the community, as represented by its administrative departments, determined the standard of medical skill and care which ought to be available for the poorer members of the community, who were thus supplied with treatment of a grade higher than that for which they would ordinarily pay or be able to pay. This meant selling a higher-priced commodity at a lower price, and so driving the lower-priced commodity out of the market—a process which had long been in operation in medical treatment, and which the proposals of the Minority Report would greatly accelerate. To remedy this economically unsound position there are two courses open—to devise a new discrimination of patients well founded and generally accepted, or to establish a free system of medical treatment for the mass of patients on lines of State contract resting either on a salaried medical service or on insurance. He believed that the former course was practicable, and would be more consonant with the national tradition. He advocated a system based on the existing doctor's clubs and provident dispensaries which would be developed under the control of the local Medical Assistance Committee as contemplated in the Majority Report. To prevent individual patients from getting out of this system and having recourse to the voluntary hospitals or the Poor-law infirmaries and dispensaries it would be necessary to establish a similar tariff of charges at these institutions; the charges would be settled as nearly as possible by the consensus of the profession in the locality and would be payable by the patient and his friends or by the Public Assistance. This extension and reorganisation of the provident system would practically give all the advantages of State insurance against sickness, would associate the great body of the profession with its operation, and would ensure that an agreed standard of remuneration would be payable for a similar service, whether in ordinary practice or in Public Assistance or in voluntary work.

Dr. J. H. Keay (Greenwich) thought that the individual relation of doctor and patient which formerly prevailed was the best system, but admitted that it was now ceasing to be possible. He believed that in Scotland and in the North of England the principle of club practice did not work too badly. He had no language strong enough to express his condemnation of the effects of the out-patient departments of voluntary hospitals in sapping the spirit of self-help in the wage-earning class and in cultivating a habit of loafing. He was in favour of a compulsory system of insurance with a graduated scale of contributions. From an extensive knowledge of that country he was quite convinced that compulsory insurance had done much to make Germany what it is; it had got rid of the slums, and it had in a most remarkable degree strengthened the moral independence and self-respect of the wage-earner.

Mr. H. W. Armit (Wembley) thought it very important that the medical profession should express a decided opinion on this question. Their opinion would certainly influence the form of whatever legislative proposals were brought forward. He strongly advocated a compulsory system of State insurance, based on the German systems, but organised with a recognition of the defects and failures as well as the advantages which had been revealed in that country's experience during the last 25 years. He did not see, however, that compulsory insurance could be introduced without police registration, and he feared that it would be difficult to establish such a system of registration in face of the prejudice of the English working classes against what they would erroneously regard as an interference with their personal liberty. He dissented from the belief that sickness insurance was a very prolific cause of malingering in Germany; it had been found by neurologists in that country that probably 70 per cent. of cases suspected of shamming were really instances of traumatic neurosis. So far as it was real, the evil of malingering could be satisfactorily dealt with by the German plan of placing the individual under expert observation in a special institution for as long as might be necessary. He agreed with Dr. Keay in attributing the self-reliant spirit of the German working class very largely to the influence of the national insurance system.

Dr. Major Greenwood (London) did not think it probable that the medical profession would get control of the medical work under the new systems that had been proposed. He regarded the idea of abolishing destitution as quite visionary, and believed that the recommendations of the Minority Report were dangerous. He would accept the system of compulsory insurance which would enable the workman to pay his own doctor.

Mr. W. Holder (Hull) expressed the opinion that the legislative proposals on this matter were already drafted, and that all the Association could hope to do would be to modify them in details. He was entirely opposed to the principle of contract payment, which rested on a false analogy between medical practice and manual labour. The insurance system strengthened character and stimulated the spirit of self-reliance. Whatever scheme was adopted it was essential that the medical men working under it should be in a position of independence with regard to the patients. Inspection should be by Government officials promoted from the ranks of the medical men who were engaged in this work.

Dr. A. H. Bygott (Barking) remarked that if Mr. Loch knew what contract practice meant to the medical man who had to work under it he would hardly suggest that it should be made the basis of a system of State insurance. In Barking there was a large section of the population who would not be able to pay any part of the insurance premium; it was clearly impossible that these persons should be allowed to choose their own doctor. Under a State-aided insurance scheme, where medical attendance would not be provided by salaried officers, the malingering difficulty would be considerable. It was all very well to say that the Association could take disciplinary measures against practitioners with a deficient sense of responsibility in the matter of certificates, but the public would have to find the money for the scheme, and they were not at all likely to leave its management in the hands of the Association.

Mr. W. L. Muir (Glasgow) was opposed to systems of State sickness insurance. He considered that the scheme outlined by Mr. Loch would do everything that was necessary, and would not be attended by the disadvantages involved in the proposals of the Minority Report.

Dr. A. E. Larking (Buckingham) was afraid that many of the schemes discussed would impose an intolerable burden of clerical work on medical men. He deprecated comparisons with Germany, where the national conditions were quite different and where more particularly there was no such development of the friendly society system as prevailed in this country. The contract system with a fixed minimum fee—say 8*s*. or 10*s*. a head annually—would be the most

simple and the most practical solution of the problem. In country districts there was no need of sickness insurance.

Dr. A. H. WILLIAMS (Harrow) emphasised the importance of securing that the present rate of payment for contract medical work in this country should not be taken as a standard in fixing the amount of remuneration under a State-aided system.

Dr. R. W. W. HENRY (Leicester) remarked that contract practice worked fairly well amongst the artisan population of Leicester. It enabled the private practitioner to retain many working-class patients who in the absence of such a system would have sought medical relief from the Poor-law.

In reply to a question by a member of the section Mr. LOCH said he believed that it was generally understood, if indeed it had not been authoritatively stated, that the Government was framing its insurance proposals with the advice and assistance of the heads of the large friendly societies.

Mr. SMITH WHITAKER, replying on the discussion, said that what the profession had to aim at was the establishment of an adequate minimum rate of remuneration for medical service. He did not think that it was practicable to devise a graded scale of fees. Even if the principle of graduation according to income was to be embodied in a system of State-aided insurance, there was no reason why the payment of the doctor should not be at a fixed rate. He hoped that the medical profession would realise how much they could do by collective action to influence the solution of this question in their own interest and in that of the public health.

NAVY, ARMY, AND AMBULANCE.

WEDNESDAY, JULY 27TH.

President, Colonel ANDREW CLARK, A.M.S. (T.F.), (London).

The PRESIDENT having welcomed the members,

Major C. G. SPENCER, R.A.M.C., communicated a paper entitled

Local and Spinal Analgesia in Relation to Active Service.

He said that surgical work on active service might be considered under two heads—the immediate treatment of the wounded during and after an action, and the subsequent treatment of the cases when they had reached a "stationary" or a "general" hospital. The early treatment was carried out in the field ambulances, and there little more than first-aid could be attempted. At that stage no operation should be undertaken unless it was urgently necessary. Anæsthetics would therefore be required chiefly for securing wounded vessels, for putting up some compound fractures, and very rarely for any other purpose. Local analgesia was not at all suitable for that kind of work. It was suitable only for operations in which every step was accurately known beforehand. The difficulty, often amounting to impossibility, of ensuring asepsis under field conditions was another objection to the use of local analgesia. Perhaps the most weighty objection of all was the time required to produce satisfactory local analgesia. One advantage of local analgesia was that it dispensed with a separate anæsthetist. It might be useful for a medical officer who was single-handed should he be compelled to operate without assistance. Even then it would hardly enable him to attempt much more than the removal of a superficially lodged bullet. He regarded spinal analgesia as having no place at all in field work. At the best it was a somewhat uncertain method, and it demanded special experience, time, and most careful attention to a multitude of details for its success. The assistants at the operation must be thoroughly conversant with the special requirements of the method, the posture of the patient must be very carefully adjusted, and after the operation complete rest for several days was absolutely necessary if the unpleasant after-effects of spinal analgesia were to be avoided. It was in its present stage of development altogether too delicate and complicated a procedure for the hasty emergency work in a field ambulance. In the stationary and general hospitals the conditions of surgical work were practically the same as in a military or civil hospital in time of peace, and the special difficulties attending work in the field had not to be faced. There the choice of an anæsthetic might be made according to the nature of the case, and local, spinal, or general anæsthesia might be employed as the surgeon might prefer.

Mr. A. E. BARKER (London) said he fully endorsed all that Major Spencer had said. There had been a tendency in several quarters rather to force the pace in regard to the newer forms of anæsthesia without sufficient knowledge and experience, and Major Spencer's remarks would help to put a slight check on hasty conclusions and rash action.

Fleet-Surgeon A. G. WILDEY, R.N., said that he was disappointed to hear such discouraging views on the subject of local and spinal analgesia in the field. He looked to early nerve-blocking to relieve much agony in mangled wounds, and hoped that by lessening shock and facilitating transport it would afford some hope of successful primary amputation.

Captain J. W. H. HOUGHTON, R.A.M.C., said, while agreeing entirely with the remarks of Major Spencer and Mr. Barker, he thought the uses of local and spinal analgesia would not be so limited on active service as they indicated.

Fleet-Surgeon P. W. BASSETT-SMITH (Haslar) said, speaking from a bacteriological point of view, he thought the risk of sepsis in giving injections of fluid was exaggerated.

Fleet-Surgeon WILDEY read a paper on

Hypodermic Injections in Action: Suggestions for Simplifying their Administration.

He said that in such actions of war as naval engagements, when casualties were numerous and caused almost entirely by the results of shell-fire, the first attentions of the surgeons and their assistants, professional and lay, would be required for the arrest of hæmorrhage, for the relief of pain, and for the lessening of shock. There they were dealing with the immediate relief of injuries of great severity—smashed and mangled tissues, compound fractures with dragged and lacerated nerves sending increasing afferent impulses of pain and shock, wounds too extensive and too contaminated to allow a hope that such first-aid dressings as might be applied under the circumstances could render them sterile, wounds more eager for anodynes than for immediate antiseptics. Tourniquets, pressure forceps, and hypodermic syringes, with perhaps the iodoform dusting-dredger and the iodine spray or sponge, must take the first place in the surgeon's armament when a pause in the action permits him to reach the wounded. While much ingenuity had been expended upon the simplification of tourniquets, resulting in their extreme handiness and efficiency, they remained, unfortunately, most painful appliances. Of pressure forceps they had a great variety, but they were still in want of some light, strong, and inexpensive form of easily applied hæmostatic clip, something as mechanically simple as the safety-pin and costing almost as little. Still more were they in want of some contrivance to simplify the charging of the hypodermic syringe to ensure rapidity of action and certainty of dose. To attempt to charge the syringe directly from a bottle of stock solution, or first to pour the morphine into a shallower vessel, was to invite such accidents to the stock as the capsizing of the bottle or the exposure of its contents to the dust and débris of action, with consequent blocking of the needle. To overcome those difficulties they required an unspillable bottle with protection for its contents under all circumstances; also they should have a metal scabbard attached to the coat to readily and securely hold the needle-fixed syringe when not in actual use. Some time ago he had contrived a simple and inexpensive shallow glass reservoir to hold not less than 1 ounce of solution and fitted with two, or double-layered, indiarubber detachable caps. Through the caps the needle of the syringe could be thrust into the solution and the syringe rapidly and easily filled. A slight lateral pressure on the needle while charging the syringe prevented the formation of a vacuum. This morphine bottle had been adopted by the Admiralty for issue in field-chests and to the service afloat. Amongst other advantages the shallow rubber-capped morphine vessel admitted of injections being given in the dark, provided always the strength of the solution was such that one complete syringeful was one dose. In morphine solutions they had the most generally useful injection for the soothing of pain, while its calming action on the circulation aided materially the control of hæmorrhage; but equally important were injections of local analgesics and of anti-shock and hæmostatic drugs. It was not impossible that "nerve-blocking" might be attempted quite early in the treatment of the seriously wounded. Injections of local anæsthetics into the neighbourhood of the great nerve trunks of the limbs might help to cut off the fearful storm-areas of the mangled limbs from the central nervous system, and by arresting shock impulses mitigate the agony and dangers of transport and so add to the chances of recovery from a primary amputation. All

those injections would be facilitated by the use of rubber-capped bottles, and several different drugs could be kept ready to hand if the bottles were of distinctive shape.

Fleet-Surgeon BASSETT-SMITH said every endeavour should be made to simplify treatment in emergencies. Rubber-top bottles had been employed for a very long time for vaccines and they were excellent, but rubber was not suitable for use in the tropics as it rapidly deteriorated.

Surgeon-General G. J. H. EVATT suggested that instrument makers be invited to construct a hypodermic needle with metallic squeezable case containing morphia solution, which could be squeezed into the patient and the case then thrown away.

Fleet-Surgeon WILDEY, in reply, said the perishability of rubber had been taken into account. He had suggested they should be supplied in hermetically sealed tin boxes holding six caps for use in the tropics.

Colonel P. BROOME GILES, A.M.O., read a paper entitled

The Training of the Territorial R.A.M.C.

He said that it was necessary to realise that though a period of six months was intended to be allotted to combatants subsequent to mobilisation to perfect their peace training, that could not apply to the Royal Army Medical Corps. In his opinion, the regimental stretcher bearers should receive from the medical officer attached to their unit instruction in first-aid and sufficient drill, so that they could work at a stretcher, load and unload any injured as little harmfully as possible; but hours spent in perfecting drill, even if not wasted, could better be employed in acquiring first-aid. That instruction should be given as a course and the men not permanently segregated as medical orderlies. Each year it was better to instruct fresh men, for in action they could not have too many with a knowledge of first-aid. In camp on all parades which the medical officer attended a stretcher squad should be told off for emergencies, and opportunity taken to impart instruction, and the men pointed out any advantages or risks the surrounding country possessed in approaching and dealing with the removal of the wounded. With regard to field ambulances, during the year and previously to camp all the general instruction and drill should have been completed; the sections organised under their officers should be so forward that two days in camp should be amply sufficient for all ranks to shake down into their respective places. Two important questions were: 1. Should the field-ambulance training be a real thing, a training centre, or should it merely be an appendix to a brigade, perfunctorily treating such dummies as might be arranged for on field-days? 2. As the amount of sickness should be very small, should a detention hospital be established for the period of camp or should each field ambulance deal with its own sick? Here there were divergences of opinion; he had tried both ways and strongly recommended that the field ambulance should be a training centre, and that each field ambulance should deal with its own sick by daily detailing sufficient *personnel*, equipment, and transport for that purpose, and so leave the remainder free to exercise, go on track, or bivouac away from camp. He could not too strongly urge the importance of placing as much responsibility as possible upon the sectional officers. He was greatly in favour of the field ambulance on one day going out and keeping the relative positions in an imaginary attack or defence upon a position representing what a division would have occupied; it should treat casualties systematically placed by the adjutant who, from his experience, knew how probably a real fight would have influenced the positions. Also a field ambulance should be mobilised as completely as the peace equipment permitted, each unit furnishing a section. The sanitary company training during the year was rather restricted. There was practically no equipment and strenuous steps should be taken to put those units in possession of proper training machinery. Up to the present time units had been trained at military hospitals, which was no doubt the better system; still, he felt sure if with their peace strength they furnished a section of a hospital near their division once every three years it would be advantageous.

Lieutenant-Colonel E. M. WILSON, R.A.M.C., read a paper on

Medical Requirements in War, with Suggestions for Assisting the R.A.M.C. on Mobilisation.

He said that with a view of supplying additional medical officers for the expeditionary force the Special Reserve of Officers was created, and he had previously tried to show how in order to make provision for those requirements every medical practitioner, whether civil or military, might help each in his own way. All could use their influence to recommend men fully qualified to join the Special Reserve of Officers. Teachers and deans of schools could point out the advantages to students of the Officers Training Corps. Their own officers might take more interest in the after careers of their own trained men who left the colours by registering their names and recommending them for employment in civil life. Medical men, too busyin private practice to accept commissions in the Territorial Force, might take up ambulance work and assist in training and keeping efficient some of those subordinates whose services on mobilisation would be in such demand. The Territorial and the Special Reservist must do his training annually. The St. John Ambulance man must perform at least 12 drills and attendances every year or he could not remain in the Brigade, and he laid stress on the constant maintaining of efficiency.

Lieutenant-Colonel G. E. TWISS, R.A.M.C., pointed out that in the old form of enrolment in the St. John Ambulance Brigade the question was asked if willing to serve with the army "at home" or "abroad," and such questions reintroduced would help Colonel Wilson.

Colonel C. H. MILBURN pointed out the necessity for the acceptance of men for service abroad and service at home, as many instances had occurred in the past where men were not medically fit for service abroad, but were eligible to and could serve at home.

Surgeon-General EVATT said that the pharmaceutical profession should be specially dealt with and a defined status given them on joining the Territorial Army.

Major A. M. CONNELL, R.A.M.C. (T.F.), said there seemed to be a desire on the part of members of the Pharmaceutical Society who were enlisted in general hospitals to obtain commissions. He certainly felt very strongly that it would serve no good purpose to grant such commissions.

Lieutenant-Colonel WILSON, in reply, said he thought that the system of having two sets of companies in the St. John Ambulance Brigade, one being the company of the Brigade in a district and one being a "county company," might lead to duplication, but, of course, that was a matter for the authorities at St. John's Gate to deal with. Replying to Colonel Milburn, he said that the men of the St. John Ambulance Brigade who served at home during the South African war had been gladly welcomed and a separate form of agreement was specially drafted for them, but it was a fact that very few volunteered for that duty, the great majority preferring to go on active service. In reply to Surgeon-General Evatt, Major Connell, and others regarding the position of qualified pharmacists in military hospitals, he said that it was a fact that dispensers were enlisted into the army during the South African war as privates and subsequently given promotion. Dispensers could join the St. John Ambulance Brigade as supernumeraries and enter the Home Hospitals Reserve, or enlisting into the Territorial Forces R.A.M.C. could qualify for promotion. A knowledge of medical returns and administration in connexion with dispensing was all that was required.

OPHTHALMOLOGY.

WEDNESDAY, JULY 27TH.

President, Mr. CHARLES HIGGENS (London).

The PRESIDENT, in his opening address, reviewed the changes in the practice of Ophthalmology that he had known during his experience of 40 years. In some branches there could be no doubt that they had made great advances both in theory and practice; in others the advance, if any, was small. Considering this second group, he instanced the grave diseases of trachoma and glaucoma. Of the first they had learned something more of its histology, and possibly of its pathology, but save for the fact that they had dropped the old name of granular lids or ophthalmia for the more classical name of trachoma they had made no alteration in their practice regarding it that was worth the name. Of glaucoma it could be said they had learned a great deal of its pathology, but as regards its treatment he was sure that a "bad" iridectomy was now, as it was 40 years ago, the very best and most successful operation, and by a "bad" iridectomy he meant one that left a minute fragment of iris in the scar, so that

the wound never properly healed, but maintained constant leakage proportional to the tension of the eye. In other diseases, such as inflammation of the anterior uvea, they had little advance to record; these cases were as mysterious and intractable as ever; but he would not say much on this as the subject was to be considered in a set discussion of the section. In diseases of the lacrymal apparatus the only improvement in methods he could cite was the very general cessation of the practice of slitting up the canaliculi for every form of epiphora; it was a good change. Their greatest advances had without doubt been in the realms of optical work. The treatment of squint had been revolutionised, correction of difficulties of vision was uppermost, and operations had become proportionately rare with the best results. In quite recent years they had improved greatly in their methods of testing colour vision, thanks largely to the labours of Dr. Edridge-Green; but the matter was still the subject of inquiry, and it was without doubt a complicated one. The establishment of the universal use of the metrical system of measuring lenses had been of the greatest value and convenience in practice; younger members of the profession could scarcely conceive the worries in fractional calculations they had escaped by the substitution of dioptres for inches. Again, they had gained much by improved and standardised test types. The appliances of their work had been improved by the universal use of electricity; it was a boon not to be forgotten. Coming to operative measures particularly, he could not see very much change. It would seem, to judge by the makers' catalogues, that every man invented instruments of his own, but the essential tools of their craft remained unchanged. Graefe's knives, the keratome, forceps, and cystotome were the basis of most modifications of cataract instruments. But in the introduction of the giant magnet of Haab there was a real gain, notwithstanding it was an appliance for hospital rather than private practice, in which its use was rarely required. In some fields of their labours there had been a recrudescence of old operations. Sclerotomy for glaucoma bid fair to be fashionable once more, but it was no new thing. Bader and himself had practised it by incision and by the use of trephines; they mostly did it to relieve tension in blinded eyes, and the effects were undoubtedly good; but the practice had been superceded by the fashion for iridectomy. Again, removal of the lens in its capsule was an old operation, it was described in Macnamara's text-book and then mentioned as old; he did not favour the method himself, but he had practised it rather by way of accident than purposefully, and no harm had resulted; the human eye would withstand a lot of handling. In the treatment of syphilitic affections changes were to be observed; at one time the use of mercury was grossly excessive, then came the inevitable reaction and its replacement by infinitesimal doses of potassium iodide; now their practice seemed to be rational and successful. In local anæsthetics they had obtained a great gain; the contrast to operating with a badly-administered general anæsthetic, with its risks of post-anæsthetic vomiting, to their present invaluable cocaine was immense; it appeared to him to be the greatest advance of his time. Antisepsis had also done much for them, asepsis little, for the attainment of asepsis of the conjunctiva was well-nigh impossible. Then in the objective diagnosis of refractive errors the substitution of retinoscopy for direct ophthalmoscopy had been invaluable; he remembered the time when such a master of the refraction ophthalmoscope as John Couper was not ashamed to spend hours over a few cases which to the surgeon of the day would occupy but minutes. One other point was worthy of remark, and that was the enormous increase in the number of ophthalmic surgeons. In his early days there were but a handful in London, now there must be more than a hundred. He hoped competition would have no ill effect upon their work. In this connexion he wished more power to the British Medical Association, and an increase of its efforts to prevent abuses both within and without the profession.

Dr. G. A. BERRY (Edinburgh) then opened a discussion on

The Future of Ocular Therapeutics,

considering the prospects of advance in the use of local and general remedies. The underlying idea of their discussion was an inquiry as to how far their knowledge, their aspirations, and the directions given to their scientific knowledge and practical views of to-day indicated the direction in which any real advance might be expected to take place in the near or more remote future. Practical therapeutics could not be brought within the limits of very definite rules; a great deal would always depend upon the individuality, the temperament, the judgment, and the resourcefulness of the medical man. Further, there was an equal variability in the toleration, vulnerability, and diathesis of each patient he was called upon to treat. It was even so in eye affections, where diagnosis was so much more sure than in other branches of medicine. The progress of science in physiology, pathology, and bacteriology, and also in chemistry and physics, was constantly affording new indications for treatment; and similar advances tended to explain the effects of therapy which had hitherto been empirical. Nevertheless, it seemed true that the main advances in treatment were those which clinical experience had established. Scientific discovery might lead to changes, but did not ensure such new treatment to be better than, or even as efficacious as, other methods which did not appear to comply with a more accurate knowledge of the pathology of a disease. Clinical experience could alone demonstrate utility or failure. Part of the reason for the failure of indications afforded by scientific observation was due to the difference of effects of the same interference, whether it were upon normal or diseased tissues. Even laboratory experiments in antiseptics did not necessarily ensure the effectiveness of that reagent that was presumably most sure; local tissue reaction introduced a complexity not recognisable in laboratory experiments. So with antitoxins, sera, vaccines, &c., for which there appeared scientific indications. In these the inferences were complicated and the outcome far from commensurate with expectations entertained. At the present their art lagged behind their science. Yet, even so, their art advanced slowly but surely, for with every successful assimilation of a scientific indication blind empiricism was reduced. Excluding operative and optical treatment, he considered local and general treatment. Both were older than history. Local treatment was known to the Egyptians in earliest times, and general treatment flourished in India and China long before Hippocrates. In local remedies it was curious that many had continued in valued service even to-day, particularly for diseases now known to be microbic. Mydriatics, miotics, local anæsthetics, analgesics, vaso-constrictors, and vaso-dilators were of almost entirely recent introduction. Yet of these it could not be said they were as local applications established on a basis that admitted no difference in practice. Witness the abuse of mydriatics and a too prolonged and too powerful application of local antiseptics. In the future he looked to the more general substitution of pure alkaloids for salts of these reagents. Still, it was remarkable that of the two most extensively used reagents corrosive sublimate was of great antiquity, and boracic acid was the first of known antiseptics. It seemed likely that they should discover selective antiseptics for particular micro-organisms, yet it was possible that the combining of different antiseptics might prove of real advantage, for these drugs had uses beyond their bactericidal power. Part of their difficulty in judging of these matters arose from their lack of knowledge as to how the tissues of the eye reacted to some of these infections when no treatment was given. If they knew something of this they might see how to add to and hasten nature's curative processes. Particularly did they need greater penetration and less general irritation in the antiseptics employed, and it was a need which might possibly be met. Ionization seemed an approach in this direction, perhaps also subconjunctival injection. Of the use of specific sera and vaccines he would not speak in detail, as this fell to the province of the next speaker, but there were undoubted indications that these would prove of real value. New methods for increasing the resisting powers of the tissues was a line upon which they might expect advance; heat and cold were valued by everyone; paracentesis had received justification; of dionine he could not speak with much satisfaction. Other methods of local treatment, electricity, X rays, radium, and massage, required reference. As regards electricity he confessed the utmost scepticism as to any good having ever been done, in any eye affection whatever, by the use of either the continuous or interrupted electrical currents. And he did not think past experience foreshadowed future benefits. Electrolysis had proved of service; something might be expected of iontophoresis. It was too soon to define the sphere of radium, but it seemed to be better and safer than the X rays. But they needed opportunity for forming an opinion as to its value and limitations. Referring to general treatment, he noted a curious difference in its usage as compared with local treatment. Old local methods survived at least in simplified forms, but this could not be said with equal truth of

general treatment. Excessive purging, bleeding, blistering, the use of emetics, and the excessive use of mercury, had all disappeared. Sweat cures also were now rare; perhaps that was a pity, but they might return to favour. For the future he anticipated the discovery of methods for the arrest of tuberculous lesions, perhaps of preventing them. Syphilis and cancer might conceivably yield to curative and prophylactic measures; and even alcoholism might be eliminated as a factor in disease. Maybe other disturbing influences would arise to fill the places of those overcome, "but sufficient unto the day is the evil thereof." Improvements in the treatment of glaucoma were to be anticipated; and he would fain hope for successful relief of detachment of the retina; even now they occasionally got some good from Deutschmann's method of double puncture. Brain surgery would possibly relieve them of many cases of optic atrophy. Such were the possibilities that seemed to him to arise out of their present lines of advance. What else was in store for them, who could say; was it altogether inconceivable that cataract itself should be capable of prevention, or at least of arrest?

Dr. J. W. H. EYRE (London) continued the discussion, taking up the consideration of

Bacterial Products.

He said that scientific therapy depended upon accurate diagnosis; it was hopeless to expect improved methods of treatment without this as a basis. Take, for example, the well-known condition of ophthalmia neonatorum: this was not a specific entity, but one that depended on the infection of several organisms—the gonococcus, streptococci, staphylococci, and others; clearly any specific treatment needed a particular diagnosis. There were two groups of bacterial remedies, antitoxic sera and vaccines. He could not recognise local and general divisions. What they did was to imitate nature so far as possible. Their methods were the outcome of observations of general disease produced experimentally and of a close study of the course of infection and the production of antibodies directed against the invading organism. Careful inquiry showed that antibodies were specific. Nature was very strict in her methods in these infections, and one antibody would not serve against an alien organism. Hence the prime necessity for accurate diagnosis. Serum therapy seemed to have only a limited applicability. There was one undoubtedly valuable serum, that of diphtheria; it was of value in diphtheritic conjunctivitis. Of other sera little good had come, at least in eye work. The antipneumococcic serum was not antitoxic, but antibacterial; it had proved of some service; but in his experience pneumococcic affections of the eye were uncommon in England, though more common on the continent. One of the difficulties of obtaining specific sera was the inability to immunise animals of sufficient size. Vaccine therapy seemed to present a much more fruitful field. Its object was to provide a stimulus to the natural processes, to provoke the production of antibodies within the affected subject, and in larger quantities than were naturally formed. They obtained cultures of the invader, destroyed them by heat, standardised the preparation, and injected known quantities of the vaccine into parts of the body distant from the original infection; the reaction caused a local production of antibodies which circulated throughout the body and exerted a beneficial effect upon the distant lesion. Of those most useful in eye work he would cite the old tuberculin T. R. of Koch; this they had only recently learned to use in a proper manner. Staphylococcal and streptococcal vaccines had proved of great value, in direct contrast to the inutility of the sera. Gonococcal vaccine had proved of value in iritis. The applicability of tubercular vaccine was increasing, and he looked to it to afford a better means of treating tubercular conjunctivitis than any surgical method. Lastly, he dealt with the relations of the ophthalmic surgeon to the bacteriologist. Harm was done by isolated individual action, for each failed in a knowledge of the other's line of work. To obtain the best results they must work hand in hand, the surgeon to observe the clinical aspects of the case, the bacteriologist to carry out the specific diagnosis and the indications for specific treatment.

Three papers pertinent to the discussion were then read as part of the discussion.

Mr. ARNOLD LAWSON and Dr. MACKENZIE DAVIDSON (London) communicated a paper on

Radium Therapy in Ophthalmology.

They gave an account of an investigation into the possibility of radium as a therapeutic measure in external diseases of the eye and eyelids. The mode of application and some indications gathered from their experience were given with regard to usage, length of exposure, and frequency of sittings. The immediate and remote effects of exposure were discussed, and the results of treatment detailed. (An extensive tabular summary of the cases treated was circulated.) The report was of an encouraging nature and suggested in particular that corneal ulcers were amenable to the action of this agent. There seemed to be no doubt that spring catarrh was definitely cured, whereas by any other treatment it had proved intractable.

Dr. H. M. TRAQUAIR (Edinburgh) read a paper on

The Treatment of Purulent Keratitis by Zinc Iontophoresis.

The treatment was introduced by Wirz in 1908 for external eye disease. The principle underlying it was the carrying of extremely minute fragments of the zinc electrode into the tissue by means of the galvanic current. He demonstrated the apparatus used and the general methods of anæsthesia and mydriasis adopted in the course of the treatment. Up to the present 27 cases of corneal ulcer had been treated by him in that way, and only those which were of so serious an order that the ordinary treatment would have been by means of the thermo-cautery. Film preparations and cultures were made from the ulcer to establish diagnosis. Twenty cases were typical ulcus serpens, the others were atypical. Of 20 investigated cases 15 were of pneumococcal origin. The cases treated were described in detail, and it was concluded that on the average the treatment was more expeditious, and the vision regained after cure was superior to that obtained by the cautery. The method was not unduly painful and the apparatus was convenient and simple.

Mr. N. BISHOP HARMAN and Dr. E. R. MORTON (London) communicated a paper on

The Use of Carbon Dioxide Snow in Eye Work.

They pointed out the recentness of the use of this snow in surgery and the established place it had secured in the treatment of capillary nævus. Their communication related to its use in papilloma and rodent ulcer about the eyelids and in trachoma. In the treatment of external new growth their experience had been one of great satisfaction. A large papilloma and four rodent ulcers had yielded to single applications of the snow for 40 seconds. The application caused scarcely any pain and the after reaction was not discomforting. The growth simply exfoliated and left clean healed surfaces almost indistinguishable from normal skin. In the treatment of trachoma brief and repeated applications were made, beginning with 15 seconds; the time was gradually increased to 30 seconds; sittings were once a week. They did not pretend to assert they had found any specific cure for a disease of so chronic and intractable a nature as trachoma, but they pointed out that in cases of six months' treatment fine scarring had been produced quite as readily as one could expect, and that the treatment had a particular value in that it was free from pain. The preparation of the snow was demonstrated to the section on the succeeding day and cases treated were exhibited. One of trachoma was treated with the snow at the time.

In the general discussion on the subject for the day Dr. ANGUS MACGILLIVRAY (Dundee) said he thought that Dr. Berry was rather inclined to be pessimistic of the prospects of advance. He regarded the advance in bacteriological methods of diagnosis of the highest promise—e.g., in the case of corneal ulcer their action should be entirely determined by it. If the pneumococcus was found it was an indication for the immediate use of the cautery; but if the diplobacillus was the infecting organism then the cautery was injurious, and zinc became their sure aid. Again, in conjunctivitis the finding of the Koch-Weeks bacillus indicated an inflammation that would speedily depart, even without treatment; but the diplobacillus would keep up inflammation for long periods unless effectively treated with zinc. Fibrolysin injections he had found of great service in reducing scars of old interstitial keratitis; in this he disagreed with Dr. Berry, but he was entirely in accord with him in his strictures on the use of electric currents. The coöperation of bacteriologist and eye surgeon was likely to be of great value, but they should not hasten to discard all the laboratory expert condemned—e.g., he found argyrol of value in ophthalmia neonatorum, notwithstanding its feeble bactericidal power.

Dr. R. A. REEVE (Toronto) held that the efficacy of dionine

had not been fairly tested unless the powder itself was used in direct application, after the use of cocaine. In acute iritis with synechiæ solutions of dionine might prove useless, but the powder produced speedy and gratifying effects; they must not be afraid of a marked reaction, the best result followed it. Again, he questioned the pessimistic view of electricity; high-frequency currents had been of service to him. Also fibrolysin injections had been followed by resolution of vitreous opacities responsible for detachment of the retina with resultant improvement in field and acuity of vision.

The PRESIDENT remarked on the use of electricity in early optic atrophy. He saw no justification in it—it was rather like flogging a dying horse.

Dr. G. S. RYERSON (Toronto) said he had had gratifying results in the use of radium in cases of epithelioma of the conjunctiva; these were cases that spread to the surrounding tissues, and incision did not secure cure without great loss to the tissues. Nævus of the lids also yielded readily to radium. He asked what activity of radium had been used by Mr. Lawson.

Mr. A. HILL GRIFFITH (Manchester) said he had had the most gratifying results from the use of tuberculin in cases of tuberculosis of the ocular and palpebral conjunctiva. Complete cure had been obtained.

Mr. A. W. ORMOND (London) referred to four cases of tubercular periostitis of the orbit in which there were proptosis of the eye and loss of vision. In all cases part of the mass had been excised and proved to be tubercular. Tuberculin injections had been used with unvarying improvement of the conditions. In two cases complete cure had been obtained, and the other two were improving more slowly.

Mr. LESLIE J. PATON (London) said that in the treatment of detached retina it was important not only to get the retina back into place but to fix it there. Through lack of fixation cases that at one time promised fair were eventually disappointing. He recommended the use of the cautery for perforating the sclera and retina, and the attempt to draw the retina into the lips of the wound. This method presented an ideal method of sealing the retina to the scleral cicatrix.

Dr. G. MONTAGU HARSTON (Hong-Kong) confirmed the beneficial effects of argyrol in 25 per cent. solutions in the treatment of ophthalmia neonatorum. The use of powdered dionine he considered too drastic; not only was the reaction severe, but in one case he had seen a severe reaction of the patient against the doctor. He confirmed absolutely the conclusion of the President as to the uselessness of high-frequency currents, or any other electrical current, in optic atrophy. In one case he had seen some success from intramuscular injections of succinimide of mercury, but it was rash to draw conclusions from one case.

Major H. A. J. GIDNEY, I.M.S., considered dionine of great value in corneal opacities; the chemosis it caused need not alarm one. Fibrolysin, he considered after an extended trial, useless. He emphasised the necessity of restricting the use of the cautery to the advancing edge of the pneumococcal ulcers of the cornea and leaving the central portions, which had been shown to be free of organisms, untouched.

Major G. H. FINK, I.M.S., commented upon the use of carbon dioxide when in solution in water. It had been proved by Hankin of Agra to be destructive of organisms.

Dr. BERRY, in reply, said he had been interested to hear of the use of carbon dioxide snow. As a manager of the Edinburgh Infirmary he looked upon new remedies from an economic point of view, and serious expenditure they had contemplated on the acquirement of radium had been obviated by the advent of the snow. Regarding the possibility of cure or retardation of optic atrophy, he thought that those cases in which improvement was believed to have been effected by treatment were really retrobulbar neuritis and of the same order as those described by Graefe in 1850 as amblyopia *sine causâ*.

Dr. MORTON replied to some questions concerning the use of carbon dioxide snow. As regards the sensations of patients, they experienced at the moment of the application a slight burning feeling, there was slightly more sensation at the time of thawing out, but neither of these sensations was discomforting. The efficacy of the treatment upon rodent ulcer was a surprise to all concerned.

OTOLOGY.

WEDNESDAY, JULY 27TH.

President, Dr. EDWARD LAW (London).

The PRESIDENT, in a brief address, welcomed the distinguished visitors, and expressed regret that Professor Politzer, through illness in his family, was prevented from being present. He then touched upon the value of the combination of scientific business with a long respite for social intercourse. This coalition of business and pleasure not only led to pleasant acquaintanceship, with a possibility of enduring friendship, between men engaged in the same vocation, but also dissipated personal jealousies and misrepresentations and obliterated international prejudices. He congratulated the members of the section on forming once again a separate section of otology. The wisdom of the isolation from any other section became self-evident when one considered the marvellous growth of specialism. At the same time he was desirous of otology having a more pronounced sphere of influence in the nose and naso-pharynx; the apathy of aurists in not introducing naso-pharyngeal subjects more frequently into their discussions encouraged the suggestion occasionally mooted of a separate section of rhinology. Unless otologists showed more interest and enthusiasm in the nose and the naso-pharynx, and so got down to the portal of entrance and the bed-rock of many aural affections, it was probable that rhinology would assume the rôle of the "predominant partner" in the study and treatment of diseases of the throat, nose, and ear. He drew the attention of the members of the section to the very interesting and instructive report of Dr. James Kerr, the eminent and zealous education medical officer of the London County Council. The report showed the dire necessity of the compulsory medical examination of school children; it emphasised the fact that childhood is often the only time for the preventive treatment of deafness and many other troubles in later life. It recorded an experiment in the treatment of aural cases, particularly suppurating ears, at their own homes; it pointed out that the congenitally word-deaf child was no longer to be classed as imbecile and neglected in education. The weighty facts revealed throughout the report demonstrated that their representatives in this huge metropolis were undertaking social work which a few years ago would have been looked upon as impracticable or Utopian, and which, *inter alia*, must have a most salutary and far-reaching influence on the prevention, early recognition, and treatment of aural affections. He alluded to the controversial topic whether the examination and treatment referred to should be carried out at the child's home, or undertaken at the hospital, or in school cliniques, and by whom such measures, whether operative or otherwise, should be carried out. He hoped that every member present would agree with him that these special duties should be undertaken or supervised only by specially trained members of the profession (not necessarily specialists), who must be suitably remunerated for their valuable services to the community, regardless of economic cost, which is, after all, in the long run, a sound investment for the long-suffering ratepayer. Dr. Kerr's report also stated that the interesting experiment of a tuberculosis school was to be tried, and a careful analysis of 500 cases of deafness was included, but neither in the report nor in the analysis was any mention made of "aural tuberculosis in children." That easily explainable omission justified the action of the section in choosing as a fit and proper subject for one of their discussions,

Aural Tuberculosis in Children.

The discussion was limited to the diagnosis, the prognosis, and the treatment without details of operative procedure, and was opened by

Dr. W. MILLIGAN (Manchester), who dealt with the frequency of aural tuberculosis in childhood, and described in detail the usual routes of infection. He insisted upon the importance of recognising the disease as of primary origin in the middle-ear cleft in a large proportion of the cases. The main symptoms of aural tuberculosis, subjective and objective, were then considered, and the various methods of establishing a definite diagnosis were described and criticised. The complications most frequently met with were enumerated and their relative importance mentioned. The important questions of prognosis and treatment were also discussed and

the results of treatment were analysed. Suggestions were made as to how best to deal with aural tuberculosis in school children, so as to prevent dissemination of the disease, and the advisability or otherwise of isolating infected children was considered.

The PRESIDENT remarked that aural tuberculosis in childhood appeared to be of more frequent occurrence and of greater moment than was usually surmised. The prophylactic war-cry evidently was, "Pure milk and satisfactory hygienic environment."

Mr. R. LAKE (London), speaking of his own hospital experience, considered the disease was very rare indeed. This experience might be explained by such cases more frequently finding their way to the general hospitals and not to the special hospitals. He advocated absolute eradication of the disease by operative measures regardless of consequences to the facial nerve, and he considered formalin a useful antiseptic after the operative procedure.

Mr. F. H. WESTMACOTT (Manchester) had examined cases at the Children's Hospital, Manchester, during the past two years for information on this subject required by school medical officers. Out of 1500 cases in the past year he found 31 cases of undoubted tubercle of the ear—that is, 2 per cent. Of the 31 cases the discharge showed tubercle bacilli in only 2 cases; in the other cases a mixed infection was present.

Mr. SYDNEY R. SCOTT (London) said his personal experience of the disease was based upon some 10 cases which he had met with at the Evelina Hospital for Children. In all these cases the diagnosis was established by direct histological examination or by inoculation. All the children were under 4 years of age except one, a boy of 5 years, who already had a mastoid fistula when first seen. Mr. Scott took a favourable view with respect to the result of local treatment effected by the complete radical tympano-mastoid operation through the ordinary post-aural route, and he would not consent to treat these cases through the meatus.

Dr. R. BÁRÁNY (Vienna) was also in favour of operative measures and of making them as radical as possible. He did not hesitate to operate a second time if the results desired had not been obtained by the first operation. But at times, after recovery from the operative treatment and after the wound had soundly healed, the child succumbed to meningitis. In the matter of the medical inspection of school children this country was more advanced than Austria, but at the present time there was a movement on foot to introduce in his own country the systematic inspection of school children.

Dr. DUNDAS GRANT (London) was of the opinion that tuberculosis of the ear would be more often diagnosed at an early stage if the possibility of its occurrence was kept more prominently before the mind. Many cases of apparently acute mastoiditis in very young children had a basis of tuberculosis with pyogenic infections superadded. The removal of fragments of tissue for preliminary microscopic examination could be safely effected by means of Hartmann's minute punch forceps. He had seen good effects from the application of methyl violet either in the tympanum or in the osseous wound.

Dr. W. JOBSON HORNE (London), whilst fully agreeing with Dr. Milligan that tuberculosis of the ear in child life was usually primary in origin, and that it occurred quite early in life—in fact, within 12 months of birth,—at the same time, could not accept Dr. Milligan's suggestion that the disease might therefore be ante-natal in origin. Dr. Horne considered the disease had a distinct morbid anatomy, that it was essentially a bone disease starting in the deeper parts of the mastoid and petrous portions, and he suggested radiography as an aid in making a diagnosis in an earlier stage of the disease.

Mr. T. MARK HOVELL (London) emphasised the importance of the supervision of the milk-supply. He fully agreed with Dr. Milligan that the disease should be notified so that the impure milk-supply might be traced to its source.

Mr. HUNTER TODD (London) said, with regard to the origin of the disease, he considered that in some cases it must be through the blood stream. With regard to prognosis, if the diseased area of bone could be eradicated by operation the result was favourable. Death, in Mr. Todd's experience, seldom occurred from meningitis, but if so, it was from a separate infection and not from the spread of the tubercular lesion. He had found that if these patients died the cause of death was miliary tuberculosis or pulmonary phthisis and not tubercular meningitis.

Mr. C. E. WEST (London) held that the number of tuberculous infections of the ear had been greatly overstated if it applied to the class of case seen in hospital practice in London. He questioned the possibility of free tubercle bacilli in the atmosphere of the naso-pharynx, so conveyed, as Dr. Milligan seemed to imply, along the Eustachian tube to the tympanum. Such a supposition seemed highly improbable.

Dr. MILLIGAN, in his reply, stated that he knew his statistics would be challenged. He thought that tuberculosis was overlooked as a basis of many cases of mastoid disease.

Dr. H. S. BIRKETT (Montreal) gave a demonstration illustrated by radiograms of the mastoid process.

PATHOLOGY.

THURSDAY, JULY 28TH.

President, Mr. S. G. SHATTOCK (London).

The section combined with the Bacteriological Section for a joint discussion on "Complement Deviation Methods in Diagnosis" (see "Bacteriology").

PHARMACOLOGY AND THERAPEUTICS.

THURSDAY, JULY 28TH.

President, Professor A. R. CUSHNY (London).

The PRESIDENT, in introducing a discussion upon

The Effect of Digitalis upon the Human Heart,

said that laboratory investigators were now in a position to ask clinicians if digitalis was in all things a satisfactory drug. If it were not, then it was certainly possible among the digitalis group to find a member which would conform to almost any requirements. Digitalis had a double action, upon the inhibitory apparatus of the heart and upon the cardiac muscle. He asked the clinicians, Were these factors properly balanced in digitalis or would the therapeutic effect be improved by augmenting one or the other? Clinical opinion, however, must be backed by actual measurements comparable to those obtained in the laboratory.

Professor WENCKEBACH (Groningen), in opening the discussion, paid a tribute to the distinguished work of British physicians and pharmacologists in investigating the complex action of digitalis. He showed upon the epidiascope tracings which witnessed that after digitalis had been taken two effects became simultaneously apparent—the pulse was slowed and there was an increase of irregularity of rhythm. Whenever there was slowing there was also this increase of irregularity. This action was the result of stimulation of the vagus. It was abolished if the vagus were cut or paralysed by atropine. Pressure upon the vagus in the neck in man caused a remarkable retardation of pulse, both radial and jugular. The strengthening of the beat, on the other hand, was probably due to the action on the muscle. In small doses digitalis caused a deeper diastole and a deeper systole. In large doses the diastolic increase disappeared. He did not regard it as right to limit the use of digitalis to conditions of low tone. The action upon conductivity was complex. Therapeutic doses might do harm by lowering conductive power which was already weakened and produce, partly by muscular effect, partly by vagus inhibition, a condition of heart-block. Under digitalis in small doses the excitability of the muscle became less. In this he found the explanation of a phenomenon he had often met with—the disappearance of extra systoles under small doses of digitalis. In large doses this effect was reversed. The drug probably had a constant vaso-constrictor effect upon the arterial system. All these diverse influences worked in different intensity according to variations in dose, form, and condition of heart. In a slow heart the retardation of pulse was not wanted. Where there was no œdema there was no need for diuresis; where the pressure was high the vaso-constrictor action might be troublesome. Yet the applicability of the drug was very wide. In almost all cases of cardiac disturbance it was wise to give it a trial, carefully and in small doses, even where there was not marked cardiac dilatation and loss of tone.

Dr. JAMES MACKENZIE (London) said that the views held upon this important subject were so discordant that he had determined to disregard all accepted teaching and to make a fresh start. At the Mount Vernon Hospital he was endeavouring to accumulate reliable data upon which judgment could be founded. He made use of the new methods of recording the heart beats and of estimating the blood pressure, and he had the advantage of being able to submit all the drugs made use of to examination and standardisation by Professor Cushny. He emphasised the importance of calculating not only the condition of the heart at rest but also its power of work, as, for example, in ascending stairs. The pulse and respiration and the blood pressure were examined and recorded both before and after exercise and the results compared. The earliest evidence of exhaustion of what he called the work power of the heart was usually, however, not found in these objective signs, but in the subjective sensations of the patient. The importance of these sensations, breathlessness, consciousness of the heart's action, irregular action, fluttering sensations, a feeling of suffocation or actual pain, had been under-estimated. They usually appeared much in advance of any objective sign derived from cardiac examination. In estimating the size of the heart he made use of percussion. He did not regard the orthodiagraphic and photographic methods as sufficiently accurate. He had found a distinct relationship between the degree of heart failure and the extent of hyperalgesia of the cardiac wall. He had confined himself to the use of the B.P. tincture of digitalis. Where this had disagreed he allowed the patient to escape from the influence of the drug and substituted strophanthus, squills, or helleborein.

Dr. THOMAS LEWIS (London) discussed the characteristic reaction of the heart to digitalis when the auricle was in a state of fibrillation. This fibrillation of the auricle was not confined to man. He had recently had an opportunity of observing it in the horse beating *in situ*. The chamber was found in a condition of continuous diastole; no coördinated contraction of its walls interrupted its continued distension, but careful examination showed a tremulous state of the musculature. It might be supposed that in such a condition the normal impulse-formation was in abeyance and in its stead numerous small areas of the hyper-irritable musculature were building up independent and pathological impulses. The whole contractile substance of the chamber was thrown into delirium; meanwhile the ventricle beat rapidly and irregularly, with completely disordered rhythm. It was supposed that these beats were due to the escape occasionally of impulses from the turmoil of small contractions in the ventricle. On such a heart digitalis had a marked retarding effect. It had been suggested by Professor Cushny that the slowing of the ventricle was due to an increase in the resistance to the passage of impulses from the fibrillating auricle down the auriculo-ventricular junction. A tracing was shown from a dog in which stimulation of the vagus caused a slowing of the ventricular beat, while the auricular fibrillation proceeded unchanged. Where heart-block was present, fibrillation of the auricle was not accompanied by rapidity of ventricular beat. In an epileptic and syphilitic subject with fibrillation of auricle and heart-block the pulse was 30 and regular. It was therefore extremely probable that in fibrillation of the auricle digitalis slowing was the result of heart-block, produced especially in hearts with pre-existing damage of the junctional tissues.

Dr. H. H. TURNBULL (London) gave a short account of the clinical experiences which he had had while working with Dr. Mackenzie at the Mount Vernon Hospital upon the action of digitalis. They regarded full doses as necessary to produce the effects of the drug. Unless it was pushed no result might be obtained in cases which would at once react to larger doses. They had found that there was no danger in pushing the drug if the type of case was taken into consideration and the results watched. Before serious effects occurred the patient complained of headache or nausea. The only cases likely to show bad effects were those with a damaged auriculo-ventricular bundle in whom heart-block might occur. Cases had been treated as out-patients with ɱxv. of the tincture with good results. They maintained that raised blood-pressure was no contra-indication to the use of digitalis and was often due to some secondary effect of heart failure. Cases without œdema showed no increase in urine. In old people with cardiac degeneration little cardiac change was apparent. In the young rheumatic heart the pulse was invariably slowed. Rarely both auricle and ventricle were simply slowed; more commonly there was vagus arrhythmia, occasionally varying degrees of heart-block. Extra systoles were sometimes produced, but never stopped by digitalis. With strophanthus diarrhœa was more common and vomiting less common than with digitalis.

Dr. J. D. WINDLE (Southall) showed tracings indicating the action of digitalis in slowing the heart in cases of nodal rhythm or auricular fibrillation.

Sir LAUDER BRUNTON (London) said that it was just 45 years ago that he began to collect digitalis leaves for an investigation into its action. Six months later he saw a case of digitalis poisoning which showed quick beats with interpolated slow ones. Like Professor Wenckebach, he attributed this condition chiefly to the action of the drug upon the vagus, but he also took into consideration the possibility of a part being played by a system of accelerator nerves. He thought that clinically an estimation of the relation between power of the heart and arterial tension was very important, by the sphygmomanometer and by the sphygmograph. He thought that harm might arise in cases of gouty kidney from too great a rise of blood pressure. The heart was a double organ, right sided and left sided. Symptoms of discomfort and dyspnœa might arise from weakness of the right ventricle, while the left ventricle was perfectly healthy. He thought that clinicians wanted from pharmacologists a knowledge of the relative proportions of cardiac stimulants like digitalin and of bodies with a marked vascular effect like digitonin in each preparation. Moreover, he wanted to know what drugs had a selective action upon the right and what upon the left.

Dr. W. T. RITCHIE (Edinburgh) discussed the cause of the coupled rhythm or continued bigeminy produced by digitalis, and which replaced the perpetual arrhythmia of the ventricles associated with auricular fibrillation under the action of digitalis. He suggested that the prolongation of diastole under digitalis led to increased intracardiac pressure, and that wherever an enfeebled heart was unduly irritable such a rise might produce a regularly recurring extra systole.

Dr. A. M. GOSSAGE (London) discussed the connexion between loss of tone of the heart muscle and dilatation. Digitalis, he believed, benefited the heart by increasing tone.

Sir CLIFFORD ALLBUTT (Cambridge) thought it necessary in cases of degeneration of the heart to eliminate the part played by emphysema. He thought that emphysema as a potent cause of right-sided heart failure received often too little attention, and unless its effect was subtracted subjective sensations were apt to mislead. Vomiting when once started by large doses of digitalis, in his experience, did not always disappear with the readiness suggested by Dr. Turnbull.

Professor WENCKEBACH and Dr. MACKENZIE shortly replied.

PHYSIOLOGY.

THURSDAY, JULY 28TH.

President, Professor WILLIAM H. THOMPSON (Dublin).

Professor E. A. SCHÄFER (Edinburgh) opened the discussion by reading a paper on the

Factors which Make for an Efficient Circulation.

He proposed to deal only with the circumstances which more immediately affected the circulatory mechanism under normal conditions. The effective action of the heart varied: (1) with its rate of rhythm; (2) with the force of the individual beats; and (3) with its condition of tone. He spoke of the part played by the nervous system, which affected each of these conditions. By way of the vagi influences passed which moderated the rate, diminished the force, and lowered the tone; by way of the sympathetic, others which increased the rate, force, and tone. The proper balance of these effects in accordance with the work which the heart had to perform must be regarded as one of the most important factors in maintaining an efficient circulation. The ultimate source of excitation was probably always peripheral, the afferent impulses reaching the cardio-inhibitory and cardio-accelerator centres from the skin and the sense-organs, viscera, muscles, tendons, serous membranes, blood-vessels, and even from the heart itself. Respiration, together with the tone of the abdominal muscles, exerted an important influence on the heart's action. The respiratory apparatus

acted by facilitating the flow of blood to the thorax and thus to the heart, and, within limits, the greater the rate of blood-flow to the heart the more efficient the circulation, since the heart reacted to the work thrown upon it. The rate of rhythm, however, tended to diminish with increase of arterial pressure—a regulating effect due to the vagi. On the other hand, increase of pressure in the coronary arteries was a direct excitant to cardiac activity. Another factor essential to the maintenance of the circulation was the tonic contraction of the blood-vessels, which adapted the vascular system to the amount of blood it contained. This tone was regulated partly by nervous means, partly through the agency of hormones. The vessels, and especially the arterioles, like the heart, were supplied with a double set of nerve-fibres, the vaso-constrictors and the vaso-dilators. The former followed the course of ordinary motor nerves, except that they were distributed through the sympathetic, while the vaso-dilators followed, as W. M. Bayliss had shown, the course of, or might even be identical with, the afferent nerve fibres. The impulse which reflexly produced vaso-constriction or vaso-dilatation originated as did those influencing cardiac action, mainly from the periphery. The work of Bernard and Ludwig about the middle of last century, followed by the innumerable researches initiated by their discoveries, thus established beyond a doubt the important relations which subsisted between the vascular and nervous systems. Until recent years it was not possible to make any further positive assertions, although certain facts could not be accounted for. It was now known that the internal secretion of certain glandular organs exerted an important influence in regulating both the vascular tone and the force and rhythm of the heart beat. Such hormones could account for the fact that retention and recovery of tone might take place after complete severance of parts of the vascular system from the central nervous system. Those producing the greatest effect of this nature were the medulla of the suprarenal capsules and the posterior lobe of the pituitary body. Suprarenal extract strongly augmented the vascular tone as well as the rhythm and force of the heart, while pituitary extract markedly raised the tone of cardiac muscle without acceleration of heart rhythm, which might even be diminished. Moreover, the latter extract tended to produce dilatation of the arterioles of the kidney and consequent diuresis, the other arterioles in the body being simultaneously constricted. Passage into the blood of suprarenal secretion had been definitely proved, and he pointed out that it was probably justifiable to believe in a similar passage, direct or indirect, of pituitary secretion. The fact that experimental removal of the pituitary body was equally fatal with that of the suprarenals pointed to the supreme importance to the organism of the substances formed by them. The pituitary body also contained a depressor substance which acted on the heart and arterioles, and it was possible that the two substances might be produced in accordance with the needs of the organism in general and the vascular system in particular. He compared this balancing action with that of the vaso-motor nerves, and emphasised the point that there was a further very important action due to these hormones, namely, that exerted directly upon the tone of the nervous system. Evidence of this was given by the tonic effect of extract of pituitary body in cases of surgical shock. He referred also to the well-known effects of excessive thyroid secretion on the heart (shown by Graves' disease or excessive doses of thyroiodine). The further consideration of the influences regulating the circulatory mechanism he left to subsequent speakers.

Dr. GEORGE OLIVER (Harrogate) approached the subject from the clinical standpoint. He spoke on cardio-vascular adjustment, vascular tone, and the relation of peripheral resistance and blood pressure to circulatory efficiency. In connexion with vascular tone he pointed out that much information could be obtained by a study of the effect on the pulse produced by change of posture. His arteriometer had been the outcome of his observations. In chronic fag a low vascular tone prevailed with consequent rise of blood pressure when the patient assumed a recumbent position. He also spoke on the relation between syncope and splanchnic vaso-motor inefficiency, on excessive vascular tone, the injurious effect on the ventricle of a permanently high peripheral resistance, and the bad effects on the nutrition of the walls of the heart in conditions of too low peripheral resistance. Work, he said, was the best cardiac tonic for normal man.

Dr. LEONARD HILL (London) expressed the pleasure it was to see Professor Schäfer amongst them. The important work on the internal secretion of the suprarenal bodies initiated by Professor Schäfer and Dr. George Oliver had opened up a new vista to science, and he could only congratulate Professor Schäfer on the consummation of his researches. He then criticised the modern tendency of applying laboratory results obtained by experimenting on immobilised and anæsthetised animals in the recumbent position to normal and actively moving beings. He regarded the body as a wet sponge, squeezed by each muscular contraction. It was the function of the heart to propel the blood, the function of the muscles to squeeze it back to the heart. The squeezing action of the muscles was not, he thought, sufficiently taught. He spoke on capillary pressure measured by his method of introducing a fine hollow needle under the skin. He denied the existence of filtration pressure, which, according to his views of the mechanism of the circulation, could not exist, and expressed the opinion that it was the secretory activity of the cells which regulated the pressure. Dr. Hill said that no evidence of venous back pressure existed; if the blood flow in the veins was obstructed the venous pressure rose for a very brief period of time, and œdema came on only the next day.

Sir JAMES BARR (Liverpool) spoke on some practical points in connexion with blood pressure and the part played by lime salts in the circulation.

Professor BENJAMIN MOORE (Liverpool) thought that the chief factor in the regulation of the blood pressure was a chemical one. He disagreed with Sir James Barr as to the significance of the lime salts, regarding them more as by-products thrown out with other chemical substances by reason of the chemical peculiarity of calcium as an element.

Dr. ALEXANDER HAIG (London) regarded uric acid as one of the most important factors which produced the variations found in the blood pressure of man.

Dr. IVY MCKENZIE (Glasgow) contributed an interesting paper on

Healthy Lungs and Chest Wall as Factors in an Efficient Circulation

with reference only to that aspect of the question to which Professor Schäfer referred when he said that "the respiratory apparatus acted by facilitating the flow of blood to the thorax and thus to the heart," and pointed out that the extent to which an interference with normal pulmonary expansion or deficient thoracic movement could be correlated with a change in size and shape of the heart might be taken as indirect evidence of the part played by the normal respiratory movements as factors which make for an efficient circulation. The study of cases supporting this contention was classified into two groups: (1) cases in which extensive collapse of the pulmonary tissue existed; and (2) cases in which an advanced degree of rickety deformity of the chest wall existed. In the great majority of these cases collapse was present in addition to deformity. Dr. McKenzie illustrated the points by a description of a series of such cases. In each case the heart was about double the normal weight relative to the weight of the body, with relatively greater increase in size of the right side, ending in cardiac failure. Such hypertrophy could be accounted for by the failure of the accessory powers of the circulation (including the variations in intrathoracic pressure, expansion and collapse of the lungs and of the skeletal muscles). The high pulse-rate observed (averaging 150 in children of from 2 to 8 years) was probably secondary to the increased respiratory rate or associated with the cyanosis incident to the deficient respiration. A consideration of the condition resulting from atelectasis of the lung showed that possibly a vaso-motor reaction to the disturbed balance of pressure took place, or reflex contractions of the muscular rings of the bronchioles as suggested by Keith. After describing the physical changes occurring within the lung Dr. McKenzie enumerated the results as follows: (1) deficient oxygenation of blood with dyspnœa and increased cardiac action; (2) increased resistance to the flow of blood through the emphysematous parts of the lung, with consequent embargo on the right ventricle; and (3) stagnation of blood in the collapsed portions of the lung, resulting in further increase of work for the

right ventricle, and in addition the heart was deprived of the assistance of the expansion and collapse of the lung in furthering the blood flow. Reference was made to the intimate connexion between circulatory and respiratory movements, instancing personal observations on the hearts of very young fish and of mice, and those of Miss Buchanan on the rate of heart-beat in the mouse, and correlating with this the demand of the tissues for a sufficient oxygen-supply. Such a demand explained why the left ventricle was enlarged to some extent as well as the right. A consideration of many cases where intercurrent broncho-pneumonia had been complicated by collapse showed that death must be due directly to the severe strain put upon the heart. There was thus considerable evidence for the view that healthy lungs and a healthy chest were indispensable to the maintenance of an efficient circulation.

Dr. W. A. JOLLY (Edinburgh) gave results of a study of the auricle obtained with the electro-cardiogram. In cases of dropped auricular beat it was found that there were electrical variations in the curve. Dr. Jolly discussed the suggestion that the variations might be due to fibrillation of the auricle.

Professor SCHÄFER concluded the discussion by a few brief remarks, in the course of which he observed that he could not agree with the view of Dr. Leonard Hill that the results of laboratory experiments on immobilised animals were inapplicable to normal animals.

PSYCHOLOGICAL MEDICINE AND NEUROLOGY.

THURSDAY, JULY 28TH.

President, Dr. THEOPHILUS B. HYSLOP (London).

Dr. J. S. RISIEN RUSSELL (London) introduced a discussion on

The Treatment of Tabes Dorsalis.

He said that the only rational treatment of a disease was that which was based on a correct view of its etiology and pathology. The question as to whether tabes was or was not of syphilitic origin continued to exercise the minds of not a few, despite the evidence which seemed to most of them well-nigh overwhelmingly in favour of the view that syphilis was the important factor without which there would be no such disease as tabes. In his experience it had rarely happened that he had not been able to obtain a syphilitic history. Nevertheless, it had to be admitted that isolated instances were met with from time to time in which the clinical picture portrayed tabes, and yet it was impossible to obtain evidence of infection, even when the patient wished to be helpful and had no object in concealing the truth. It was here that the modern tests for syphilis might be appealed to in reason; but no one who had much experience of these tests was surprised to find that while in some instances they supplied positive information there was reason to expect negative results in others, and therefore the problem was not nearer solution. Some of them had experience of cases of unmistakeable tabes with a certain history of syphilis where these tests supplied negative information. He could not abandon the position that syphilis was the etiological factor in the vast majority of cases of the disease. Whether or not such negative cases should be treated for syphilis was perhaps open to question, but he had no hesitation in saying that it was unfair to most tabetics to be allowed to go untreated for syphilis, especially when a positive history of infection was obtained. As to the methods of treatment, he had seen the best results from inunction as carried out at Aachen, either alone or supplemented by intramuscular injections of one of the soluble salts of mercury. Whatever room for question there might be as to the value of inunction as contrasted with injection treatment, he could admit of no such uncertainty with regard to the inferiority, indeed, almost inefficiency, of mercurial treatment by the mouth. He had repeatedly seen patients in whom mercury had been given by the mouth for long periods without any benefit, and in whom, nevertheless, subsequent treatment by inunction had yielded excellent results. The details of the inunction treatment should be on as nearly as possible the same lines as obtain at Aix-la-Chapelle. He usually advised the patient to undergo a course of 100 rubbings, to be followed in from three to six months by another course of not less than 50 rubbings, which should be repeated every six months for about three years. His own experience did not support the view that it was useless to submit a patient suffering from tabes to antisyphilitic treatment except when the disease followed closely on the primary infection. As to whether a patient would develop tabes or not did not appear to be in the least influenced by the severity of the primary infection or the subsequent secondary manifestations of the disease. Indeed, a large proportion of tabetics were drawn from the class of case in which the primary infection and secondaries had been so slight as to lead to very imperfect treatment. Krön had asserted that tabes occurred at an increasingly shorter interval after primary infection the longer the autosyphilitic treatment had been kept up. It had also been suggested that the mercury used rather than the syphilis itself was responsible for the affection of the nervous system. This view was controverted by the fact that many syphilitic persons had gone untreated by mercury or any other drug and had developed tabes. He discussed the question as to whether tabes was not due to the syphilitic virus itself, but rather to the antibodies which result in the blood as a consequence of the syphilis. It was reasonable to suppose that mercury would be more likely to have an effect on the lesion if it were of the nature of a meningitis with interstitial inflammatory affection of the neuroglial tissue than if regarded as a neuronal degeneration primary in origin and not secondary to affection of other tissues. He had seen tabetics improve to such an extent that even their knee-jerks had returned under mercurial treatment, and others had experience of cases in which the pupil reflex to light had been re-established. He declined to accept the view that the cases with good results from mercury were cases of pseudo-tabes and not the genuine disease.

Dr. DAVID FERRIER (London) regarded the date of the publication of Fournier's paper in 1875 as the starting point of our knowledge of the true etiology of tabes and its rational treatment. It indicated the causal relationship between syphilis and tabes which had steadily gained acceptance. His own personal views were detailed at length in the Lumleian lectures on Tabes Dorsalis in 1906.[1] He regarded the nature of the disease as a degenerative atrophy, parasyphilitic in origin, the result of a toxin developed by the living syphilitic virus. It seemed hopeless to expect that we could restore wholly tracts or cells, that therefore an anatomical cure of tabes was an impossibility. He classified the principles of treatment as (1) prophylactic; (2) measures calculated to arrest further degeneration; (3) measures calculated to alleviate distressing symptoms; and (4) such as tended to compensate for the degeneration of the tracts which were essential to motor coördination. The efficient treatment of early syphilis offered the most hopeful prospect of success in combating tabes. The great discovery of the Wassermann reaction, though leaving some questions still unsolved as to its exact significance, gave a precise test of the existence or not of a specific virus. The treatment of syphilis should be continued till the positive reaction was converted into a permanently negative one. He had beneficial results from the administration of a combination of mercury, arsenic, and gold in the form of a triple bromide; in one case the knee-jerks returned after two years' treatment. Though an anatomical cure of tabes was practically impossible, yet the patient might recover from his ataxic and other obvious tabetic symptoms, so that a clinical cure might be hoped for. He referred in detail to the symptomatic treatment of the disease. To improve the muscular tone and to restore the faculty of coördination nothing proved so effectual as systematic massage and faradisation, and appropriate exercises according to the methods laid down by Frenkel.

Dr. ERNST FEIBES (Aix-la-Chapelle) gave credit to Erb as well as to Fournier for pointing out the close relationships of syphilis and tabes. He admitted that Wassermann's reaction only proved positive in 50 per cent. of the cases. Under antisyphilitic treatment he had known cases suffering from gastric and laryngeal crises remain for years quite free from these afflictions. He had seen the functions of the bladder return almost to their normal and ataxy with inability to walk disappear in a most marvellous manner. Of 202 cases treated with mercury he regarded 3 per cent.

[1] THE LANCET, March 31st (p. 881), and April 7th (p. 951), and 14th (p. 1017), 1906.

almost complete cures, 20 per cent. very considerably improved, and 33 per cent. a little improved. He confessed himself an adversary of intramuscular injections in nervous diseases and was a firm believer in the method by inunction prudently regulated. The mouth should be treated with a special toothpaste, with a wash of peroxide of hydrogen, and the heart and urine frequently examined. The oral exhibition of mercury could not be recommended as its energetic medication created digestive troubles. He referred to the treatment of the symptoms of tabes in general and spoke highly of Frenkel's exercises in combating ataxy. The greatest improvement by inunction took place after 80 and more rubbings.

Dr. LIEVEN (Aix-la-Chapelle) accepted the modern view that tabes was not the direct product of syphilis but was caused by the action of antibodies elaborated in response to the presence of the spirochæta pallida. He regarded mercury as having a direct destructive action on the virus as well as on the toxins produced, and that it diminished the vitality of the microbe, and if given sufficiently early should prevent tabes. With the exception of 11 out of 251 of his cases of tabes the previous treatment by mercury had been neglected or had been insufficient. He added that he considered treatment by the mouth as inadequate. No other remedy at present could replace mercury. He found the greatest benefit from inunction treatment when combined with hydro-therapeutic measures. He found injections of grey oil gave far less gratifying results; moreover, the dangers of mercurialism could not be so easily controlled. Sulphur water as well as sulphur baths lessened the risks of mercurial treatment. The economical expenditure of the patient's strength had to be considered in the prescription of Frenkel's exercises. He commented on the duration and general plan of treatment. The first course should be from seven to eight weeks.

Dr. JUDSON S. BURY (Manchester) disagreed with the axiom no syphilis therefore no tabes. He considered that knowledge and experience did not support this statement. He therefore did not regard mercury as being universally indicated. He referred to certain investigations of Orr and Rowe as bearing on the question.

Dr. J. MICHELL CLARKE (Bristol) stated that the weight of evidence from clinical and cytological investigation was in favour of the view that syphilis was a necessary precursor of tabes. His practice was to carry out antisyphilitic treatment in tabetics when patients came under observation within about five years after infection. He had also always employed the method of inunction. There could be no doubt as to the efficacy of Frenkel's exercises for the relief of ataxy, which he put in the first place amongst the advances made in the treatment of the individual symptoms of tabes. Elaborate apparatus was not essential; good results could be obtained with simple means. Next in importance was the relief of pains by modern analgesics, such as antipyrin and aspirin.

Dr. E. FARQUHAR BUZZARD (London) regarded syphilis as the chief cause of tabes, and his experience led him to qualify the statement that oral treatment by mercury was valueless. He preferred the method by inunction, but had seen beneficial results follow the oral method, and pleaded for mercurial treatment during prolonged periods of time. He did not consider optic atrophy as a contra-indication.

Dr. A. G. GULLAN (Liverpool) supported the treatment by intramuscular injections, and had not seen any untoward symptoms resulting therefrom. He related his experience of 9 cases that had considerably improved by this method.

Dr. REGINALD H. HAYES (London) gave testimony of the favourable results of the treatment of early tabes, especially by mercurial inunction well performed in combination with the use of sulphur water internally and externally as administered at Aachen. One hundred rubbings and more were frequently required to obtain the best result. Improvement was usually slow in manifesting itself. He had seen two cases of ptosis remain unaltered until 70 rubbings and then completely recover. He had observed gastric crises cease under this treatment, and marked improvement in coördination of even delicate muscular movements. For those tabetics unable to visit Aachen he urged that the methods adopted there should be utilised in this country, and should be efficiently carried out.

Dr. ALEXANDER BRUCE (Edinburgh) was not sure that the beneficial results obtained should always be attributed to the mercury administered. He considered that the pathogeny of tabes was not yet definitely settled. In some cases it was conceivable that spontaneous arrest of the disease might occur. In meningeal cases and other cases of syphilitic lesions combined with tabes mercury decidedly did good. The spa treatment might benefit a patient, but it was still a question whether the tabes had improved or had been arrested thereby.

Dr. HARRY CAMPBELL (London) agreed with the specific etiology of tabes, but was convinced the actual disease was not touched by antisyphilitic treatment.

Dr. SEYMOUR TAYLOR (London) did not uphold the view that tabes was necessarily due to syphilis.

Dr. RISIEN RUSSELL replied.

RADIOLOGY AND MEDICAL ELECTRICITY.

THURSDAY, JULY 28TH.

President, Dr. J. MACKENZIE DAVIDSON (London).

Dr. S. JELLINEK (Vienna) read a paper on

Disorders and Death following Electric Shock.

It was regretted that the short time at his disposal gave Dr. Jellinek no opportunity to deal fully with his subject. The following were the chief points of the paper, which was illustrated with numerous drawings, diagrams, and lantern slides. From an etiological point of view the most important question was, Which current was dangerous? Simple as was the question, the answer was difficult—a statement which received confirmation when it was remembered that while in some cases fatal accidents had been brought about by 100 volts, in other cases in which the voltage had been 1000, and even 10,000, recovery had ensued. In order to understand a matter so seemingly inconsistent it should be kept in mind that the danger of an electric current or plant depended on circumstances which might be placed in the following two categories:—1. The external: (*a*) voltage; (*b*) ampèrage; (*c*) number of poles; (*d*) the time of contact; and (*e*) the kind of current (continuous or alternating). The continuous current appeared to be more dangerous than the alternating. 2. The individual: (*a*) the resistance of skin and body; (*b*) the way, or the path, of the current through the body and over the surface of the skin; and (*c*) the condition of mind and body (*status somaticus*). With regard to section (*a*) of the second category, the resistance of the skin played a very important rôle, and not only the resistance of entrance, but also that of exit for the current. In most instances of accident in connexion with the resistance of exit—i.e., the feet—the earth was the determining factor as to whether contact was dangerous or not. A contact might be made with 100 volts and more if there were good isolation as regarded the feet; but it must be borne in mind that good contact with earth might sometimes be made even in well isolated rooms—for instance, carpeted rooms—if in so close proximity to water-pipes or gas-pipes as to touch them with any part of the body—earth-circuit (*erdschluss*). As to section (*b*) Dr. Jellinek said that the failure of American electrocution was most probably due to causes connected with the management of the poles, which were much moistened, a great part of the current passing over the surface of the skin, and thus not coming in contact with the organs of sensibility—the brain, the heart, &c. Under section (*c*) there was, he said, an enormous difference between the touching of a current intentionally (the mind being prepared and ready for the shock) and doing it accidentally, in the latter case the shock being liable to produce an inhibition of the functions of important organs. Electricity which passed into the body had, he said, two actions—a psychological action and a material action to the cells of the brain through the microscopical vessels of the brain, the spinal cord, the heart, &c. The result of both these actions might be either disease or death. The clinical symptoms emanated from various organs—unconsciousness, spasm, paralysis, hæmorrhage of the kidneys, degeneration of nerves, &c. The alteration of the skin (local lesions) sometimes took the form of genuine burnings and sometimes of so-called specific electric changes, which pathologically and clinically were quite different in character from other wounds. It was important to know that genuine electric lesions were painless. With regard to the mechanism of death by electricity there was no definite schema or model. In most cases it seemed

like suspended animation. It was an interesting fact that there was between electric shock and death an interim of a few seconds in which the stricken person appeared to be in quite a normal state. By experiments on dogs in the physiological institute of Professor von Tschermak it had been discovered that the irritability of the brain, which had subsided immediately after a shock, had a few seconds later become re-established, and everything then depended upon whether the action of the heart would be continued or not. As there were sometimes hæmorrhages in the brain, and as the pressure of the cerebro-spinal liquid was increased, it was necessary and important in cases of first-aid to lay the patient with the head elevated. It would, Dr. Jellinek thought, be well to educate children—and, indeed, the people generally—by means of pictorial illustrations demonstrating how accidents by electricity originated, and how to avoid them. In Austria the Government had ordered such instruction in certain schools and good results had already followed, the number of accidents in the city of Vienna being one-third less now than a few years ago, despite the increasing use of electrical energy. Dr. Jellinek also described a number of interesting experiments made with a view to the clearing up of some of the many apparently confusing symptoms found in the numerous cases he had investigated.

Dr. LEOPOLD FREUND (Vienna) read a paper on

The Conditions Necessary to obtain Radical Cures from X Ray Treatment.

He gave a tabular list of diseases which were more or less amenable to Roentgen therapy, the first class being entirely cured by a few applications, the second class being more resistant, and the third class exhibiting recurrence even after prolonged treatment. The first class contained chiefly those diseases of the hair or of hairy parts which were caused by parasitic growth. The second class, which contained lupus and psoriasis, were probably cured by the production of some antibody or antitoxin, and were hence liable to recurrence. Dr. Freund emphasised the importance of removing all crusts in lupus cases and all psoriasis scales in psoriasis before submitting the lesions to irradiation. He showed how the thinnest psoriasis scale acted as a filter which greatly reduced the biological effect of the softer X rays, although it had little or no absorbent action on the harder rays which affected a photographic plate. Hence, he drew the conclusion that the photographic method was after all a very imperfect means of measurement for the dosage of Röntgen irradiation.

In the unavoidable absence of Dr. DAWSON TURNER and Dr. T. G. GEORGE (Edinburgh) their paper on

Some Experiments on the Effects of X Rays in Therapeutic Doses on the Growing Brains of Rabbits

was read by Dr. LEONARD A. ROWDEN, one of the secretaries of the section. The following is an abstract of the paper:—The subject is of the utmost importance, as a full dose, indicated by bringing to standard tint the pastille of Sabouraud and Noire, is frequently administered to children for epilation in ringworm; indeed, the Education Committee of the London County Council determined in March, 1909, to make this treatment obligatory. Reference can be made to a letter published in the *Times* of March 30th, 1909, by Dr. Dawson Turner, containing a warning against such treatment being made compulsory. Recamier's results[1] showed that six exposures each of 10 minutes' duration with the tube at 10 centimetres distance, and with an intensity very little above a medium therapeutic dose, were able in the case of kittens to produce in one month after the last exposure very considerable modifications in the direction of the inhibition of growth of the hemicranium, the bones generally, and the teeth, and that the effect continued after the cause had ceased to operate. Others, in particular Danyz, Scholtz, and Obersteiner,[2] have shown that young animals whose brains or spinal cords had been exposed to radium rays died with marked nervous symptoms, and that post-mortem examinations revealed hyperæmia with punctiform hæmorrhages into the brain and cord. The question arose whether any change capable of being demonstrated in the nervous system would be produced by a dose of the X rays, or by a repetition of such doses as are usually employed in the treatment of ringworm. It is important to remember that in practice more than one dose is usually administered, because as the surface of the cranium is spherical, groups of nerve cells must be exposed to rays which are being applied to opposite areas of the scalp. Where the whole area of the calvaria has to be treated, no matter how careful the operator may be in giving the scalp an even predetermined dose, the brain is receiving portions of all the doses. The experiments were performed on rabbits in the laboratory of the Royal Colleges of Edinburgh, with the assistance of a Carnegie grant. A litter of six rabbits six weeks old was procured, of which two rabbits were to be kept in reserve. The first rabbit was to have one exposure, the second two, the third three, and the fourth four, with weekly intervals between the exposures. Each animal was to be killed three weeks after its last exposure for examination of its brain cells. It was thought more satisfactory to expose one-half of each animal's head to the rays and to compare that with the unexposed half than to expose the whole head and to compare that with the head of a control animal. For this reason a leaden mantle was made one-eighth of an inch thick to completely protect the animal except the right half of the head. Cotton-wool was used to immobilise the animal inside the mantle and to prevent injury through struggling. By allowing the rabbit to take a comfortable position, and then covering him with the wool and fitting the leaden mantle, a very accurate exposure of any duration could be given. The X ray apparatus included a 10-inch Apps coil, and the tube chosen was of medium hardness and of very steady resistance; it passed under the conditions of the experiments a current of between 0·4 and 0·5 milliampère. At the distance at which the heads of the animals were always placed an exposure of about 25 minutes was required to administer a Sabouraud dose. Owing to the death of two of the rabbits from accidents only four were left for the experiments. The following were the results. Rabbit F died five days after the first exposure, having lost one ounce in weight (from 16 to 15 ounces). Rabbit D had three exposures; it fell in weight in successive weeks from 15½ to 13¾ ounces. Nine days after the last exposure it died. Rabbit E had two exposures; it fell in weight from 13½ to 11 ounces in two weeks, when it died. Rabbit A had three exposures; it weighed at first 17 ounces, then in successive weeks it weighed 17½, 16½ (exposures stopped), 18, 19½, and 20½ ounces, when it was killed. All the rabbits having, unfortunately, died except rabbit A, this one only was left for examination. It should have been killed 21 days after the last exposure, but it was noticed that the left iris, which had been brown, was becoming grey, and as this suggested an analogous fatty degeneration to the arcus senilis of the human eye it was decided to await further developments. It will be observed that though the right side of the brain was exposed, the left eye was the first to show changes. An X ray epilation and dermatitis of the right side of the snout had been gradually taking place. On the forty-fourth day after the first exposure the left iris was completely grey. Five days later a grey patch 1 millimetre broad was seen in the right iris, and in five days this had increased to 4 millimetres. At this time Dr. A. H. H. Sinclair, assistant ophthalmic surgeon to the Royal Infirmary, Edinburgh, made an ophthalmoscopic examination, but no changes other than the fatty degeneration of the irides were observed. At this day, the fifty-fourth, the animal was killed and the brain was carefully dissected out. The left or unexposed half was decidedly larger than the right or exposed half. The brain was fixed with formaldehyde and mounted in paraffin, and 26 sections (coronal) of the ascending parietal and the ascending frontal convolutions were cut. Each section was mounted complete in order to compare as far as possible corresponding parts of the brain. Twenty sections were stained with hæmatoxylin and Van Gieson's stain, the remaining six with thionin. (Professor R. F. C. Leith, of the University of Birmingham, who kindly examined some of the sections, suggested that in future experiments some of the more special stains should be employed.) On microscopic examination of the two sides it was noticed that in some of the sections (1) the large pyramidal cells on the exposed side were not so well developed as on the unexposed; (2) that they were more vacuolated and had not stained so well; and (3) that they

[1] Archives d'Electricité Médicale, No. 185.
[2] Archives Générales de Médecine, Juillet, 1909.

were not quite so numerous. Objection may be made that it is impossible to be sure of comparing corresponding areas, that the difference in staining may be due to the differing penetration of the fixing reagent, and that irregularity in the thickness of the section may account for change number three. Professor Leith expressed the opinion that the blood-vessels on the exposed side were slightly smaller than on the other side, though they showed no other change such as proliferation of the endothelial lining. There were therefore no decided changes either in the cells, the number of axis cylinders, or dendrites. Owing to the deaths of all the animals experimented on save one, no corroboration could be obtained of the slight microscopic changes observed in rabbit A. This rabbit should also have been killed on the twenty-first day after the last exposure, instead of which it was not killed until the fortieth day. No conclusion can therefore be drawn as regards microscopic changes. (Special nerve stains should be employed in future.) There were some undeniable gross changes—e.g., the difference in size of the two halves of the brain, the fatty degeneration of the irides, both in rabbit A, and the loss in weight of all the animals during the exposures and the recovery in weight of rabbit A after the exposures were stopped. It would therefore seem highly desirable that further investigation of this subject should be made.

Dr. C. F. BAILEY (Brighton) read a paper describing

A Method of Treatment by Radiant Heat and Iodine Ionisation.

The treatment is applicable to fibrotic deposits, thickenings, or adhesions present in or about joints in fibrositis, chronic rheumatic and rheumatoid arthritis. The following is an abbreviated abstract of the paper. The indications for treatment were fibrotic deposits, thickenings, or adhesions present in or about joints in fibrositis, chronic rheumatic and rheumatoid arthritis, &c. It was necessary to increase the supply of arterial blood to the joints and to drive iodine ions into the affected parts, to effect a solvent action on the fibrous deposits. In employing radiant heat there should be provided a large radiant heat projector, with lamp at 100 volts taking 12 ampères, giving a temperature up to 400° F., but capable of being varied and modified down to the patient's "bearable point." 20 minutes' "baking" was needed. As to iodine ionisation the following particulars were given. The solution used was a very hot 2 per cent. solution of lithium iodide with an excess of iodine present (sherry colour). Baths of hot solution to joints (where applicable) with double carbon electrodes in fluid; or pads and bandages of lint soaked in hot solution fixed round joints, covered with chain-mail copper electrodes, and bandaged on. Methods of getting the density of current approximately equal over surfaces of skin:—Area of electrode: knee, 500 square centimetres; shoulder, 450 square centimetres; hand, 200 square centimetres; foot, 300–350 square centimetres. Steady constant current, negative pole to part requiring treatment. Knee to foot, 30–40 milliampères; arm to hand, 25–30 milliampères; shoulder to hand, 30 milliampères. The average current density in the case of the hand was 0·15 milliampère per square centimetre, but the maximum in parts might be 1·5 milliampère per square centimetre; that of the foot was 0·1 milliampère, while the maximum might be 1. Cautions necessary to be taken were to avoid the current crossing the spinal cord and to use every effort to prevent sudden variations in current. Method used to produce equality of entry of current in baths and in pads, and methods to promote diffusion of current over skin surface in order to obtain approximately equal density of current over area treated (variations in pad-thickness and increase of skin resistance by ointment). Method of treating two joints at same time. Rough method of estimating where current density is above the average. Duration of treatment, 20 minutes. Daily applications for four weeks if necessary; afterwards if necessary on alternate days. Value and explanation of value of taking iodine preparation internally during treatment if patient can do so. Movements to stretch the adhesions should be exercised as soon as possible after each treatment and exercises should be carried out between the applications. The following analysis of 21 cases was given: Cures, 28·6 per cent.; relieved, 57·2 per cent. (19·06 per cent. very greatly); no improvement, 14·2 per cent.

Dr. LEONARD A. ROWDEN (Leeds) followed with a paper on

The Value of Screen Examination in the Diagnosis of Renal Calculus.

The principal points of his paper were that by proper screen examination many errors in the X ray diagnosis of renal calculus could be avoided, its advantages being that the proper quality of rays for the particular case in hand could be more certainly obtained, and therefore better contrast secured with more likelihood of detecting a shadow. The movement of shadows could be studied, and the area of illumination could be accurately cut down to very small dimensions, increasing the definition of the suspicious spot. The paper also contained a number of useful hints regarding the various points to be attended to in the diagnosis of renal calculus.

Dr. J. B. SIMPSON (Golspie) contributed a paper on

The Advantages of X Rays in Country Practice,

in the course of which he enlarged upon the great difficulties that beset the country practitioner in the diagnosis, prognosis, and treatment of injuries and diseases of the bones and joints. He pointed out the advantages of the X rays in such conditions, and showed how their aid could be secured by comparatively simple apparatus. Some interesting cases were illustrated with lantern slides.

TROPICAL MEDICINE.

THURSDAY, JULY 28TH.

President, Dr. F. M. SANDWITH (London).

Sir RICHARD HAVELOCK CHARLES, K.C.V.O., opened a discussion on

Special Factors Influencing the Suitability of Europeans for Life in the Tropics.

In an extremely eloquent and interesting discourse the subject was discussed in all its bearings, not only from the imperial but also from the commercial point of view. The importance of the matter to assurance companies, as well as to the individuals themselves whose duties called them to serve in hot climates, was also considered. The special characteristics of the torrid zone were indicated, and the effects on health of long-continued exposure to high temperatures, great diurnal variations, and the risks arising from the parasites of exotic disease were in turn duly dealt with. The pathological changes which might be induced, involving deterioration of the blood and visceral changes, especially in the liver and intestines, the accumulation of toxins, and increased nervous irritability which might follow, were also discussed. The nervous system was specially liable to suffer in the tropics. When a person had a severe illness in a hot climate it was essential for his future health that he should have a prolonged change in Europe. The kind of man best suited to bear the white man's burden in the tropics was "a good ordinary type of Britisher, with a good head well screwed on, a good temper, but not over intellectual." He should have good teeth, a healthy digestion, a chest with plenty of expansion, a regular pulse, a healthy circulation, and he should not be too much of the blonde type. He should be of regular and temperate habits and not too much inclined to pine for the pleasures of town life. One of the best assets he could have would be a wife, a true woman, built on the same lines as himself; one that was neither irritable nor capricious, one that could amuse herself and find interest in her house. The chief danger to woman in the tropics was lack of occupation. The unsuitable man for a hot country was one who suffered from migraine, habitual headache, or any mental taint; who was obese, or who suffered from asthma or tubercle. Persons addicted to alcohol or drug taking should not go out to a tropical country. To live in the tropics a sound nervous system and a good digestion were essential. Only the fit and the best men that were bred should be sent out to take up the white man's burden in the tropics.

In the discussion which followed Colonel T. H. HENDLY, I.M.S., said he was in entire agreement with every word that had been said, and he wished that the substance of Sir R. Havelock Charles's advice could be permanently placed in every room where candidates for abroad were medically examined.

Dr. C. H. HARFORD (principal, Livingstone College, Leyton) spoke as to the fitness of Europeans for life in the

tropics, more especially as to those who went abroad as missionaries. No one with any history of insanity or tubercle should be passed. The strange surroundings, the new language, as well as the effects of the climate, all tended to produce great irritation of the nervous system. Medical men at home often passed candidates of poor physique for mission work, with a wrong impression that life in a hot country would be beneficial to the weakly candidate.

Colonel C. H. JOUBERT DE LA FERTÉ, I.M.S., said that formerly life in the tropics was regarded as a sad bugbear, but now a great change had taken place; discoveries as to the causation of disease and improvements in sanitation had worked great improvements, and risks to health and to life had been lessened. If only healthy individuals were sent out to India there would be little more danger than in staying at home.

Dr. L. D. PARSONS (Gibraltar) referred to the effects of climate on a man's energy. At Gibraltar it was a common experience when the "Levant" wind blew that many residents found it impossible to continue active work so long as it lasted.

Dr. ST. GEORGE GRAY (Nigeria) said that in addition to the influence of the climate a man's work in the tropics was never done. Indeed, overwork and worry were common. Those who lived a temperate and regular life were most likely to take no harm and to escape climatic influences.

Major P. DEE, I.M.S., said that the frequent nervous breakdowns in the tropics were due not so much to climatic influences as to overwork and overworry.

Lieutenant-Colonel A. M. DAVIES, R.A.M.C., referred to the value of a vigorous nervous system in those who went to hot countries. Probably it was not sufficiently realised how much more worry was caused by work in the tropics than in this country. Most persons who went on service abroad had to work very hard—harder, indeed, than at home.

Lieutenant-Colonel P. W. O'GORMAN, I.M.S., spoke of the necessity of having a good digestion in hot climates. He was opposed to the taking of too many liquids, whether in the form of tea or coffee; he was specially opposed to the use of alcohol in the tropics. Clothing, too, had to be carefully considered owing to the liability to "chills" and consequent internal congestions.

Dr. J. PRESTON MAXWELL (Amoy) called attention to the dangers of mental unsoundness in the tropics. It was not only a serious matter for the patient himself, but it might be disastrous, for instance, to a mission which had taken years to establish, and might be wrecked or ruined by the sudden insanity of a new-comer who should never have been sent out to engage in the work. No one should go to a hot country who had an idiosyncrasy in respect of quinine.

Dr. G. BASIL PRICE (London), secretary to the Association of Medical Officers of Missionary Societies, gave a number of statistics regarding persons sent out to the tropics from this country. He showed that 61 per cent. of the deaths among them were due to so-called preventable diseases, such as malaria, tuberculosis, &c. A considerable number of retirements were brought about by nervous breakdown, tuberculosis, or actual insanity.

Dr. J. ANDERSON (London) spoke of the various kinds of diseases peculiar to certain tropical countries, and thought that the health of the person going out should first be considered in relation to the place in which his duties would lie.

Dr. L. W. SAMBON (London) expressed the opinion that the white man would in time become acclimatised to tropical conditions. The danger to life in the tropics was largely due to parasitic infections. Looking at the victories already obtained in certain places over malaria and yellow fever, &c., he anticipated that life before long would become almost as safe to the strenuous worker in the tropics as to his fellow labourer in London, so long as the former was in a healthy condition when he went abroad and so long as the place to which he proceeded was kept in a sanitary state.

Dr. G. M. HARSTON (Hong-Kong) advised that all who were about to proceed to tropical countries should submit to antityphoid inoculation. He referred to the danger which arose in persons suffering from looseness of the bowels in the tropics going on "light diet," which meant mostly meat minced and handled by a native servant and only warmed sufficiently to incubate any pathogenic organisms it might contain.

Professor FÜLLEBORN (Hamburg) said that the views expressed by the leader of the discussion were quite in accord with those held in Germany. All persons who were about to be sent out to the German tropical colonies were compelled to submit to a test to ascertain if they could take quinine before they were passed as fit.

Mrs. B. S. ELGOOD, M.B. (Cairo), gave her views as to the kind of woman who was likely to remain in good health in a hot country. Her experience of some English girls who went out to Egypt as teachers was that they did themselves harm by too much and too violent exercise. Women with no occupation did worse in Egypt than those who were occupied.

Dr. W. T. PROUT, C.M.G. (Liverpool), said that young persons with a tendency to obesity did not stand a hot climate well, nor did young weedy clerks, who were frequently narrow-chested and badly developed.

Dr. ANDREW BALFOUR (Khartoum) gave his personal testimony as to the intense irritation to the nerves caused by native servants. In his experience electrical conditions of the atmosphere had a profound influence on health.

The PRESIDENT, in closing the discussion, urged the necessity for all men engaged in work in the tropics to take their home leave when it became due, not only for the sake of their bodily health, but in order that they might receive mental stimulation by rubbing shoulders again with their own equals, this not being possible in many of the tropical countries in which Englishmen serve.

Sir R. HAVELOCK CHARLES having briefly replied, a paper by Dr. G. DUNCAN WHYTE (Swatow) on Analysis of Air within Mosquito Nets was read by one of the secretaries in the absence of the author, after which Dr. A. CONNAL (Lagos) read a paper on a Case of Horse Trypanosomiasis treated by the Serum Method.

THE ANNUAL EXHIBITION.

(*Concluded from p. 411.*)

III.—FOODS AND FOOD PRODUCTS.

NOVELTIES were not the rule in this section of the exhibition, and on the whole the representation of special foods was on a smaller scale than on previous occasions. While it is true that there were many familiar friends which it would be superfluous for us to mention, there were also illustrations of new departures which were eagerly studied by the visitors. The sour-milk preparations were a decided feature and very general attention was paid to the claims put forward by the various exhibitors for their own particular products obtained in different ways—each claimed to possess some distinctive merits of its own.

The beginning on definite lines of the sour-milk treatment had its origin in the curd prepared by the inhabitants of the Levant and known by the Turkish name yaourte. Excellent specimens were exhibited by Mrs. F. Marsh, of Overshot Mill, Colne Engaine, Essex. At this exhibit it was explained that five species of micro-organisms were concerned in giving yaourte its specific activity and attractive flavour. The milk used in the preparation is drawn from non-tuberculous cows kept constantly under personal supervision. An interesting and dietetically important constituent of milk was shown by Messrs. A. Wulfing and Co., of 12, Chenies-street, London, W.C. It is called albulactin, or the real albumin of milk as distinguished from the casein. Since human milk contains three times as much milk-albumin as cow's milk, there can be little doubt of the importance of this substance in the artificial feeding of infants. It is suggested, therefore, that by adding the right proportion of albulactin to prepared cow's milk a milk is obtained identical with human milk, modifying the curd so that it is not hard and coarse but soft, uniform, and digestible. Messrs. Welford and Sons (Dairy Company), Limited, of Elgin-avenue, Maida Vale, London, W., exhibited a number of milks of modified composition, besides some specially prepared butter-milk containing pure lactic acid ferments. There was also a series of "Sauermilch" preparations, including milk (with the bacillus of Massol and streptococcus lacticus), whey, and cheese. Besides some interesting pharmaceutical preparations, including amongst other things pancreatine pills, absorbent lozenges for common acid dyspepsia, and aperione, a mild and effective aperient, Messrs. Savory and Moore, of 143,

New Bond-street, London, W., exhibited savore, a nutrient food based upon soluble milk and cereal proteins, and the new chemical food, or fructole of red bone marrow and glycerophosphates, which experience has proved to be of remarkable tonic value in cases of debility.

Messrs. Armour and Co., of Atlantic House, Holborn Viaduct, London, E.C., exhibited a series of digestive products, pepsin in scales, grains, and powder, and a solution in glycerine (glycerole pepsin), besides pancreatin powder and some interesting preparations of lecithin, and a nutrient beef fluid known as vigoral. The Maltine Manufacturing Company, Limited, in conjunction with Messrs. Carnrick and Co., Limited, of 24–25, Hart-street, Bloomsbury, London, W.C., showed the maltine products, consisting of combinations of active malt fluid with various medicaments, as, for example, cod-liver oil, hypophosphites, iron, quinine, strychnine, and so forth, and Carnrick's liquid peptonoids, an elegant preparation possessing decided nutrient and stimulating properties. The scientific supervision of milk products was admirably illustrated in the exhibit of the Aylesbury Dairy Company, Limited, of 31, St. Petersburgh-place, Bayswater, London, W., including "humanised" milks, preparations of sour milk, sterilised and standardised milks, and so forth. The Miol Manufacturing Company, Limited, of 82, Southwark Bridge-road, London, S.E., exhibited specimens of miol, a combination of malt, olive oil, with iodine, which has been given in wasting diseases with distinct advantage to the patient. Sour-milk preparations and an apparatus for obtaining them at home were shown by Messrs. Clay, Paget, and Co., Limited, of 71, Ebury-street, Eaton-square, London, S.W. The exhibit included a cream cheese and a sugar-free (or diabetic) milk. A series of foods which have received authoritative praise was shown by Theinhardt's Food Company, of 6, Catherine-court, Seething-lane, London, E.C. They are known as hygiama foods, and their value rests upon the fact that they are practically free from raw starch, that substance having been changed either by the action of diastase or by dextrinising, or both. The exhibit of the Vacca Milk Company, Limited, of Amsterdam, Holland, was a remarkable one, inasmuch as it consisted of specimens of milk which although sterilised had not been heated, nor had any preservatives been added. The general impression was that the milk tasted exactly like fresh raw milk. The International Plasmon Company, Limited, of 66A, Farringdon-street, London, E.C., showed the protein of milk (plasmon) in its pure state and combined with a number of foods. Recent analysis has shown that plasmon is rich in organic phosphorus compounds which are so helpful in healthy nutrition.

An interesting variety of specialities was exhibited by Messrs. Brand and Co., Limited, of 11, Little Stanhope-street, Mayfair, London, W., comprising beef and chicken essences, beef-tea tablets, meat juice, besides a milk food for infants and invalids known as "Glaxo." The well-known barley and groats preparation of Messrs. Keen, Robinson, and Co., of Denmark-street, St. George's-in-the-East, London, E., were exhibited by that firm, the specimens on the stall including the mustard preparations (bran, oil, and sinapisms) of Messrs. J. and J. Colman, who are now incorporated with the former firm. Gluten foods for the diabetic were well represented in the exhibit of Messrs. G. Van Abbott and Sons, of Baden-place, Crosby-row, Southwark, London, S.E., and there were also shown almond flour, table jellies, and hypophosphite of lime. The Protene Company, Limited, of 36, Welbeck-street, Cavendish-square, London, W., were amongst the first to recognise the value of the separated protein of milk for special food purposes, and they showed a number of valuable foods enriched with this nutritious substance. Special foods were also a feature of the stall of Messrs. Callard and Co. of 74, Regent-street, London, W., who exhibited foods which are palatable in spite of being free from starch and sugar. Mention should be made also of their casoid diabetic bread reinforced with milk protein, and a food in the form of both rusks and biscuits designed for the requirements of infant feeding.

The foregoing review of the food section of the Annual Exhibition shows that attention was directed in the main to milk and milk preparations, while the lactic acid method of treatment contributed in no small measure to the number of exhibits.

IV.—SANITARY APPLIANCES.

This section was practically confined to the exhibition of filters and disinfectants. Amongst the former were several examples of the well-known Berkefeld filter of the Berkefeld Filter Company, Limited, of 121, Oxford-street, London, W. The material kieselguhr is remarkably porous, and bacteriological tests have shown its efficacy in rapidly removing organisms from water-supplies. There was also shown an aseptic irrigator for supplying sterilised water of regulated temperature for use in surgical operations. Messrs. Slack and Brownlow, of Abbey Hey, Gorton, near Manchester, exhibited the Brownlow germ filter, which consists of hollow cylinders of porous porcelain. The attention of the visitors was also drawn to an ingeniously designed filter for supplying sterile hot or cold water for hospital or surgical purposes. Amongst disinfectants shown were the large variety offered by the Sanitas Company, Limited, of Locksley-street, Limehouse, London, E., including sanitas fluid, oil, and powder, and a series of coal-tar preparations of high germicidal efficiency. The exhibit comprised some ingenious appliances for generating sulphurous acid gas and formaldehyde, and a clear soap fluid, sanitas-sypol, which seems to be especially adapted by its detergent as well as its germicidal properties to the needs of surgical practice. Messrs. Maxsol, Limited, of Garratt Green, Tooting, London, S.W., exhibited an antiseptic preparation, maxsol, described as containing three isomeric cresols and to be more powerful than carbolic acid. A toilet cream and vaseline, a soap, a mouth-wash, and a pine fluid concluded the series. Messrs. Jeyes' Sanitary Compounds Company, Limited, of 64, Cannon-street, London, E.C., exhibited a very wide assortment of disinfectant preparations, each adapted for a particular purpose. Cyllin for general use and cyllin for medical use furnish examples. Cyllin is also the basis of a syrup, an inhalant, a pastille, a capsule, a powder, and soap. The representatives of Messrs. Newton, Chambers, and Co., of Thorncliffe, near Sheffield, explained the advantages of the izal series of disinfectants. It is claimed that izal, the purified oil from coke ovens, possesses greater germicidal power than corrosive sublimate. The exhibit included surgical dressings, soaps, ointment, and capsules containing izal in approved quantity. The advantages of ronuk as a distinctly sanitary application for polishing floors were well illustrated in the specimens shown by Ronuk, Limited, of 16, South Molton-street, London, W. The exhibit included some ingenious appliances for using ronuk in the most satisfactory way.

V.—MINERAL WATERS, BEVERAGES, ETC.

A feature of this section was the demonstrations given by representatives of the corporations concerned of the advantages of certain of our home health resorts. There was abundant information, for example, to be had as to the merits of the hot springs of Bath at a stall representing the Bath corporation. There were some handsome illustrations of the various modes of treatment in vogue there, and the exhibit showed in a convincing manner how alive to modern requirements in regard to balneological practice are the authorities at this historic health resort. Every conceivable method of hydro-therapeutic treatment was illustrated, and not less are the pains taken to make the stay at Bath socially attractive. Droitwich, again, was represented in a very instructive exhibit. The position and climate of this place were described, the uniqueness of the brine baths emphasised, the complaints for which they are suited set forth, and the social attractions reviewed. The medicinal merits of the thermal waters of Buxton, or the "mountain spa," as it is called, were amply demonstrated at the stall of the general manager of this spa. Here, again, was proof shown of the endeavours of the management to make this health resort replete not only with modern bathing appliances but with social amusements also.

The exhibit of the British La Toja Company, of 44, Wallwood-road, Leytonstone, London, was interesting. The waters of La Toja, Spain, show a saline composition, common salt, calcium chloride and potassium chloride, sodium bromide and lithium chloride being the chief ingredients. The exhibit included also specimens of La Toja mud, used locally for rheumatism, tuberculous affections, and gout. Attention was drawn to the advantages of a stay at La Toja. The "Zana" effervescing baths of the Hygienic Company, Limited, of 36, Southwark Bridge-road,

London, S.E., furnish perhaps the best example of obtaining a therapeutically active effervescing bath at home akin in its effects to those produced at Nauheim and elsewhere. There were also shown as adjuncts to treatment bath essences for obtaining aromatic baths (pine oil, &c.). The Hygienic Syphon Company, Limited, of 50, Wigmore-street, London, W., showed not only their clean and simple syphon but an ingenious apparatus for charging it with pure aerated water. The method promises to be a formidable rival to the ordinary systems of aerated water making, since it provides a complete installation for making soda and other effervescing waters at home. There was an interesting collection of natural mineral waters, representing those chiefly met with on the Continent, at the stall of Messrs. Findlater, Mackie, Todd, and Co., Limited, of Railway Approach, London Bridge, S.E. The stall of the Apollinaris Company, Limited, of 4, Stratford-place, Oxford-street, London, W., was devoted chiefly to specimens of the well-known Hungarian natural bitter water, Apenta, Apollinaris, the popular alkaline carbonated water, and Johannis water, with or without lithia. Messrs. Ingram and Royle, of East Paul's Wharf, 26, Upper Thames-street, London, E.C., exhibited a number of natural mineral waters, salts, and pastilles. There were thus represented the well-known Vichy waters, Carlsbad, Giesshübler, Selters, and Hunyadi Janos. Table waters were well represented at the stall of Messrs. Schweppes, Limited, of 49, Pall Mall, London, S.W., the exhibit including non-alcoholic wines and a series of cordials to the purity of which special attention is given. The mild but effective purgative water Friedrichshall was the subject of exhibition by Messrs. C. Oppel and Co., of 10 and 12, Milton-street, London, E.C. The water contains the sulphates of magnesium and sodium and the chlorides of the same metals sufficient to make the purgative dose about one to two tumblerfuls. Lastly may be mentioned the pretty specimens of Droitwich brine crystals exhibited by Messrs. Weston and Westall, Limited, of Eastcheap, London, E.C. They are well adapted for the preparation of a brine bath which chemically is the same as those baths for which Droitwich is famous.

VI.—PUBLICATIONS.

Recent contributions to medical literature were adequately represented at the stalls of the following publishers:—Messrs. Cassell and Co., Limited; Messrs. D. Appleton and Company; Mr. H. K. Lewis; Mr. Edward Arnold; Messrs. Rebman, Limited; Messrs. J. B. Lippincott Company; Messrs. W. B. Saunders Company; Messrs. John Bale, Sons, and Danielsson, Limited; Messrs. Baillière, Tindall, and Cox; Messrs. J. and A. Churchill; The Oxford Medical Publications; and Messrs. John Wright and Sons, Limited.

VII.—EXHIBITS OF A MISCELLANEOUS CHARACTER.

Though few in number there were some miscellaneous exhibits of interest to medical men. The Gas, Light, and Coke Company, of Horseferry-road, Westminster, London, S.W., for example, demonstrated the application of coal-gas for domestic lighting and heating purposes, and the hot-water installation attracted considerable attention. The Open Air Shelter Company, of 140, North End, Croydon, exhibited their "Stanley Bates" open-air shelter for the treatment of tuberculosis and other diseases. We have already remarked upon the excellence and convenience of this design. Messrs. Holden Brothers of 3, Harewood-place, London, W., exhibited specimens of their "nature-form footwear" designed upon the lines of the natural contour of the human foot. Messrs. J. Nesbit-Evans and Co., of Floodgate-street, Birmingham, exhibited an interesting series of hospital bedsteads. Amongst these were the "anti-sagging" bedstead, the "anti-accident" children's cot, and the "epileptic" bed. Biological incubators were shown in great variety by Messrs. Charles Hearson and Co., Limited, of 235, Regent-street, London, W. The Taunton "Diagna" patent anti-sagging spring mattress was the feature of Messrs. J. and J. Taunton's exhibit (Belgrave Works, Sherbourne-road, Balsall Heath, Birmingham). The exhibit included some very useful and ingenuously designed hospital bedsteads, tables, and rests. Lastly, the Cellular Clothing Company of 72 and 73, Fore-street, London, E.C., set out for inspection examples of their Aertex cellular clothing, the claim for which is that, as it is made up of small cells in which air is enclosed, the body is perfectly insulated from heat or cold, while ventilation is not impeded.

MEETING OF THE BRITISH DENTAL ASSOCIATION IN LIVERPOOL.

THE annual meeting of the British Dental Association was held in the Medical School of the University of Liverpool on August 3rd, 4th, and 5th. Mr. W. H. WAITE presided. About 350 members attended the meeting, many being accompanied by ladies.

Proceedings commenced with a meeting of the Representative Board. The general meeting for business of the Association followed, and was ably presided over by Mr. W. B. PATERSON. This meeting was largely attended, the chief interest centring in a Bill for the Prohibition of Practice by Unqualified Persons, which had been prepared by the Representative Board. After considerable discussion the following resolution, moved by Mr. W. GUY and seconded by Mr. L. MATHESON, was carried:—

That the Association approves generally of the Bill and instructs the Representative Board to endeavour to promote its acceptance by the Legislature.

A previous amendment limiting the Bill to an increased protection of title, moved by Mr. G. M. P. MURRAY, was defeated on a division by a majority of 2 to 1.

At the adjourned meeting, which was open to visitors, the PRESIDENT delivered an address which dealt with the past history of the Association and its work since the last meeting in Liverpool held in 1882. At the conclusion of the address a presentation was made by Mr. R. EDWARDS on behalf of the North Midland Branch to the President of his portrait in oils.

Papers possessing a medical interest were read, that by Professor C. S. SHERRINGTON being a Note on Certain Reflex Actions Connected with the Mouth; and by Professor B. MOORE on the Physiological and Pathological Metabolism of Calcium and Phosphates in Relation to the Disposition of Insoluble Salts in the Formation of Bones, Teeth, and Calculi. Two well-sustained and instructive discussions followed upon papers read by Mr. J. MILLIGAN on Dental Caries, and Dr. R. J. ERSKINE YOUNG on the Saving of Children's Teeth. The latter discussion, which was opened by Mr. NORMAN G. BENNETT, evoked considerable public interest as shown by the reports in the lay press generally.

Dental demonstrations and cases occupied the morning of the concluding day. They were shown in the new premises of the Liverpool Dental Hospital, a building the conveniences and general architectural qualities of which were much admired. The Association decided to hold its next meeting in London on August 3rd, 4th, and 5th, 1911, at the invitation of the Metropolitan Branch, and Mr. W. B. Paterson was unanimously nominated President-elect.

In addition to the annual dinner various social entertainments were offered to the members during the meeting, including a reception at the Town Hall by the Lord Mayor and Lady Mayoress, a ball at the Philharmonic Hall, and a river cruise by the President and Liverpool and district members. A golf competition over the Hoylake championship course for the "Irish Challenge Cup" was arranged by Mr. J. Royston. The subscribers to the Benevolent Fund of the Association held a meeting at the Adelphi Hotel and received satisfactory reports from the treasurer, Mr. Clayton Woodhouse, and the honorary secretary, Mr. G. Hern. Amongst votes of thanks, a special vote was passed in favour of Mr. Joseph A. Woods, the local honorary secretary, who was mainly responsible for the successful arrangements made for the meeting.

COLONIAL MEDICAL SERVICES.—*West African Medical Staff:* Dr. H. B. Kent, medical officer, Southern Nigeria, has retired from the service, and Mr. F. G. Sharpe, medical officer, Gold Coast, has resigned. Mr. J. J. Moore, medical officer, has been transferred from Sierra Leone to Southern Nigeria. Mr. E. J. Tynan, medical officer, Southern Nigeria, has been seconded for service as health officer to the Lagos Municipal Board of Health. *Other Colonies and Protectorates:* Dr. G. D. H. Carpenter has been selected for temporary appointment as a medical officer in Uganda.

THE LANCET.

LONDON: SATURDAY, AUGUST 13, 1910.

The Immediate Results of Surgical Operation.

IN the days before the advent of anæsthesia the rapidity with which it was necessary to operate on account of the suffering of the patient caused the existence of great differences in the results obtained by surgeons, and these differences depended mainly on the respective technical skill of the operators. For good results could only be expected by those surgeons whose procedure was both quick and skilful. In these latter days where speed in operating has lost much of its value, the outcome of the work of particular surgeons depends to a much smaller extent on the measure of dexterity displayed, provided, of course, that due attention is paid to the aseptic character of the wound. This, of course, is obvious, so obvious that we are apt to forget that even now the results recorded by different surgeons when meeting the same or similar situations often do not tally, and it is of the utmost importance that our operators and our teachers should endeavour to find the reasons of these differences which only too surely exist. A careful examination of evidence that lies before the medical profession will show that he who habitually obtains good results devotes much more attention to certain details, not only in the conduct of the operation itself, but in the management and preparation of the patient both before and after the ordeal.

To no slight extent the issue of an operation will depend upon the selection of cases, and this not from any fear that the surgeon has of impairing his statistics, but from the conviction of the uselessness—in fact, the harmfulness—of operating when no reasonable chance exists of success. British surgeons have perhaps been somewhat prone to err on the side of caution, but this error, if error it really be, is at least in the right direction. Again, the selection of the time to operate is at least as important as the selection of the patient A patient who to-day may be utterly unfit to be submitted to a serious operative procedure, may after a few days or weeks, during which he has been the subject of careful dietetic, medicinal, and hygienic treatment, become perfectly capable of undergoing a severe operation. Everyone, again, knows that in the avoidance of sepsis the diminution of micro-organisms, which are naturally present in the part to be operated upon, is of immense importance. But is this common knowledge invariably acted upon? The surgeon has not fulfilled completely his duty who, having to operate on the stomach of a patient, has merely done his best to render aseptic the skin of the abdomen. Oral sepsis, for instance, is a prolific source of infection after operation on the stomach, and the operative skill of the surgeon may be thrown away and the life of the patient be lost for want of preliminary attention to the patient's mouth. And when the operation has been completed, when all that surgical skill can effect has been done for the patient, the matter is by no means finished. The patient's life may be hanging on a thread, and a small neglect in the after-treatment, a small disregard of some factor, which perhaps looks unimportant, may serve to bring to a fatal termination an operation which surgically was perfect. This is another way of saying that nothing in the possible avoidance of sepsis, irritation, or collapse is unimportant. The choice of food, the arrest of vomiting, the posture of the patient, the provision of sleep, each of these if cared for with judgment adds its quota to the forces which are working for the patient's good. Each of these if neglected takes its share in bringing about a fatal issue. The difficulty of the problem how to bring a patient successfully through a severe operation differs greatly according to his previous condition. It is truly wonderful what a healthy individual can stand. Long, tiring operations, with the removal of some most important portion of the body, may be borne with wonderfully little disturbance, provided that the patient is in good health; but if some important portion of the body is already diseased, if the heart or the kidneys are incapable of fully performing their functions, then the chances of the patient recovering from the operation are very greatly lessened, and the patient can only be regarded as a fit subject for operation, because in defiance to the severity of his plight the surgeon is prepared to take extraordinary pains in the after-treatment. And it is by the exercise of elaborate care in cases of disease that one surgeon may snatch a patient from death, who in other hands would fail to survive; in other words, the patient whose case under one man might be desperate, under another man secures a fighting chance.

One of the most inspiring papers read in the Section of Surgery at the recent meeting of the British Medical Association was that by Professor GEORGE W. CRILE, of Cleveland, Ohio, who took for his subject the consideration of the mode of prevention of certain harmful factors in operations on patients handicapped in some way. A patient about to be submitted to operation may have his chances of recovery impaired by previously existing infection, by the existence of anæmia, by shock, and by psychic influences. Quite apart from other effects which these conditions may have, Professor CRILE suggested in his paper that they have all a very direct, a very certain action on the cells of the nervous system, and considered that it is possible to gauge to some degree the extent of this action. There seems little doubt that we can estimate the vital activity of the cells of the nervous system by the amount of substance they contain which takes the Nissl stain. Professor CRILE'S experiments have shown that each of the general conditions which we have mentioned as prejudicing the chances of the patient undergoing an operation, can damage the cells of the nervous system and can ultimately destroy them, so that they are no longer capable of any nervous action. They are, in fact, dead, and if sufficient cells are destroyed the life of the patient must be destroyed also. In some cases the damage is done owing to the intensity of a malefic influence; in others, it is the long duration of the action which is responsible for the damage of the cells. Professor CRILE set himself the task of solving the problem how these

harmful influences may be prevented from acting. In the case of all the factors the results are the same; the same changes occur in the cells of the central nervous system, and the same harmful effect follows. We do not follow Professor CRILE through all the details of his paper; a summary of his more important conclusions will be found in our report of the proceedings at the Surgical Section of the Association (p. 472). There is, however, one matter to which he has devoted attention which we feel to deserve especial mention. All should be aware of the very potent influence of psychical influences in the results of operation, but not enough stress is laid on this point. That fear can kill, none dare doubt. That grief can depress intensely the nervous system, all must acknowledge. And if these powerful psychical emotions act before an operation of any severity they cannot fail to exert a harmful influence, and may in critical cases suffice to turn the scale and lead to a fatal issue. The fear of the operation itself has been vastly diminished since the introduction of anæsthesia. But the anæsthetic itself can exert a terrifying influence on many minds. The odour of the anæsthetic, the unusual position, the presence of strangers, the sight of the instruments, all these cannot fail to exert a harmful influence on the impressionable mind. In a healthy subject the harm done may be of but little moment, in the weak and nervous it may be great; and Professor CRILE has devised methods by which these psychical influences may be minimised. He has endeavoured to accustom the patient to the surroundings of the administration of anæsthetics. By a daily use of an anæsthetic mask, with some substance possessed of a striking odour, he has made the patient lose his fear of having the mask applied to his face. By the administration of morphia or scopolamine he diminishes the sensitiveness of the central nervous system so as to shut off harmful afferent impulses. In some cases he combines with the general anæsthetic the use of a local anæsthetic injected in the part or into the neighbouring nerve trunks so as to prevent strong centripetal impulses. As to the anæsthetic itself, he is thoroughly convinced from careful observation of a series of cases that the degree of shock in operations when the anæsthesia is produced by nitrous oxide and oxygen is very much less than when ether is administered, and it may be well imagined that this difference, if further experience should prove it to be true, must receive careful consideration when an anæsthetic is being chosen. Further experience is needed, and further observation is required before Professor CRILE'S conclusions can be fully accepted, but his work is very suggestive and cannot fail, we think, to give rise to many investigations on which may depend practical conclusions of the very first moment.

Cavour: Nature-Student and Statesman.

ITALY does well, before a sympathising world, to attest her gratitude to CAMILLO BENSODI CAVOUR, but for whose personal influence and consummate statesmanship she might still be but the "geographical expression" which METTERNICH found her, vainly striving to work out her own salvation by clandestine conspiracy and the "moral dagger." Far sounder and far worthier of success were the methods conceived and carried out by the great Piedmontese whom she has just been commemorating—methods inspired by the genius that trained the Rome of antiquity to the conquest of herself as a preliminary to the conquest of the world—methods which made a CINCINNATUS or a CATO Major the necessary forerunner of an Imperial CÆSAR.

The military career for which CAVOUR qualified by a brilliant course of study at the Turinese Accademia attracted him primarily so far as it brought him into personal contact with men of science who were also men of affairs, and in his twenty-first year, after official attendance at Court and engineering service on the frontier, he threw himself with ardour into nature-study, particularly as it bore upon agriculture and the conditions under which the soil may be induced to yield its best. All the sciences underlying that *métier*—chemistry, botany, even meteorology so far as it could then be taught—he studied with zeal, fitting himself to make his own analyses and adding to his proficiency by correspondence, direct and indirect, with nature-students, continental and British, among the latter being Professor JOHNSTON, then holding the chair of Chemistry at Durham. A farm belonging to the family in the commune of Grinzane was the scene of his work, practical and experimental, and on this he concentrated his wonderful sagacity and energy, personally examining every detail and the capabilities of every labourer on the estate, in accordance with his conviction expressed to a friend: "In agriculture none succeed but those who direct its operations personally;" and again: "He who would rise above mediocrity must not apply his powers to too many subjects. The sun's rays focussed by a lens can ignite wood. Diffused here and there they produce no effect." So successful were his innovations that agriculturists and cattle-breeders far and near sought his advice, while the prosperity he gave to Grinzane made him, young as he was, the Syndic of the commune. A wider field in developing the resources of the soil he found at Leri in the Vercellese, whence, writing to his father, he declared his willingness to renounce the world and its pleasures and, with a forecast quite prophetic, to prepare himself, as "publicist and philanthropist, for the honourable service of the future." He was as good as his word. Rising at daybreak, he inured himself to work with a minimum of sleep, a habit which in after years enabled him as Prime Minister or diplomatist to get information of capital importance at 4 A.M., when his antagonists were still wrapt in slumber. One of the founders of the "Associazione Agraria," he drew to his side VICTOR EMMANUEL, whose sagacity, not inferior to his own, saw in the rehabilitator of the soil the genius that was ere long to rehabilitate all Italy and place the House of Savoy at its head. All this time he was widening his mental horizon, mainly by the study of English institutions and correspondence with English statesmen He visited London in the "forties," often exchanging the society of Lord JOHN RUSSELL, Lord CLARENDON, or Lord PALMERSTON for that of heads of departments, even including the chief authority at Scotland Yard! The result of these interviews, supplemented by

personal observation and inquiry, appeared in articles contributed to the *Bibliothèque Universelle* of Geneva, in which, *inter alia*, he anticipated by nearly 40 years the Unionist policy towards Ireland. His skill, his energy, his command of men, were shown in the statecraft which made France and Great Britain his auxiliaries in the expulsion of Austria from Lombardy, thus setting the revolutionary ball rolling which GARIBALDI urged on to the liberation of the Two Sicilies and their absorption into the Italian kingdom—matters which are, in the day now passing, familiar to the world in the vivid narrative of Mr. GEORGE MACAULAY TREVELYAN.

Having achieved his country's independence, he reverted to the nature-study and the biological sciences which had fascinated his youth, and, among many strokes of academic policy, he may be credited with the revival of physiological teaching in Italy by bringing the distinguished Dutch chemist and biologist JACOB MOLESCHOTT to Turin, a step which has re-invigorated the study in every Italian medical school, where more than one of the professors have been MOLESCHOTT'S pupils. Indeed, there is no calculating the good he might have wrought in Italy had not "his sun gone down while it was yet day." After his death his repositories were found to be full of designs for developing the agricultural resources of the mainland and the islands, one of these being a plan for converting Sicily into a great tobacco-growing plantation. His work, as his compatriots sadly admit, was but half done when he died at Turin in his fifty-first year, a martyr to over-exertion and high-pressure activity, intellectual and moral—a work which he himself acknowledged to be so far short of completion that (in the famous speech of his friend and fellow statesman, MASSIMO D'AZEGLIO), "having made Italy, he had yet to make Italians."

The Future of the Negro Race.

ANTHROPOLOGISTS are naturally recruited from the ranks of medical men; a study of human anatomy, physiology, and psychology must always form the basal part of the education of those who make a comparative study of human races. In the many wordy warfares which have been waged round the status of the negro race medical men have taken an active part. It was SHARP, a London surgeon, who elicited the famous verdict from Lord Chief Justice MANSFIELD in 1772, that a slave was free when he stepped on British soil. The crusade for the abolition of slavery, which was commenced then and prolonged far into the nineteenth century, directed the attention of medical men to the racial position of the negro. Was he structurally a different species and therefore unfit for an equal place with the European? At the end of the eighteenth century no man was so well qualified as JOHN HUNTER to answer the first part of the question. He answers it, but in an indirect manner. When REYNOLDS painted his portrait HUNTER opened the sketch book shown in the background of that famous picture at the page which illustrates the evolution of the human skull. The negro skull is figured as an intermediate stage; in HUNTER'S opinion the negro cranium was a lower stage than the European. "The darkest species," he wrote, "should be reckoned nearest the original." HUNTER regarded fertility as a test of species; the mulatto was well known to him, and it is therefore clear that he regarded the African and European as one species. A contemporary of HUNTER, CHARLES WHITE, the Manchester physician, also regarded the negro as a stage in the evolution of the human race; he was the first to show that the forearm of the negro, like that of the chimpanzee, was proportionately very long. JAMES COWLES PRICHARD, the Bristol physician, the first and one of the greatest of British anthropologists, gave an analysis of the negro characters and concluded that there were no grounds for excluding the negro from the species in which the European is included. In his famous lectures on the Natural History of Man at the Royal College of Surgeons of England in 1818, Sir WILLIAM LAWRENCE, while admitting the specific equality of the negro, said that "every fact in the past history and present condition of the African proves their inferiority of faculties," but added that such inferiority constituted a reason for special treatment of the race and did not justify the "revolting and antichristian" traffic in human flesh.

We may pass lightly over the change of view which followed the advent of Darwinism—the work of HUXLEY and of FLOWER, both by training medical men—and see how the matter stands to-day. The authority we are to quote is not a medical man, but one closely in touch and sympathy with the work and aspirations of modern medicine, Sir HARRY H. JOHNSTON. No one is better qualified to speak of the African races than he. For 25 years he has been exploring, investigating, recording, administering, and governing various parts of tropical Africa. The latest work, "The Negro in the New World,"[1] is the twelfth of a series of great works devoted to a study of the negro's mind culture and body. In the first chapter of his latest work he gives a brief but admirable summary of the structural position of the negro. There is no question of a higher and lower race; the negro represents not a stage in the evolution of those human races which are usually accounted higher; the European, the Asiatic, the African represent terminal branches of the human stock; each has its own specialisations. If pigmentation of the negro is an old character of the primal human stock, his woolly hair and full lips are novel specialisations; the features of his skull—his straight and rather bulging forehead, the usual absence of supraorbital ridges—are less primitive than those of the European; he is prognathous because he has a healthily developed dentition and palate. The negro brain carries on it no mark by which it can be recognised with certainty, but we must at the same time admit that we cannot assign a mental status to any man from a mere examination of the brain. We must judge a race, not by the appearance of the brain after death, but by the manner in which that organ reacts to the demands of civilisation. Sir HARRY JOHNSTON'S study of the racial problems of the United States leads him to anticipate a successful future for the negro there. He is not blind to the defects and

[1] The Negro in the New World. By Sir Harry H. Johnston, G.C.M.G., K.C.B., D.Sc., with one illustration in colour by the author, and 390 black and white illustrations by the author and others. Maps by Mr. J. W. Addison (Royal Geographical Society). London: Methuen and Co., Limited. 1910. Pp. 499.

delinquencies of the African races; in his opinion the negro is the victim of his past; his faults are the result of long ages spent in the darkness of the African continent and under the lash and discipline of the slave master. In Sir HARRY JOHNSTON'S opinion education will raise the negro to take a just place in the scheme of civilisation. He pins his faith to that type of practical educational propaganda which is being directed by Dr. BOOKER WASHINGTON from the Tuskegee Institute in Alabama. If all the members of the coloured race could be raised by education to the level of Dr. BOOKER WASHINGTON, then the negro problem would indeed be solved—all but for one obstacle. Many of our readers will remember the storm of indignation that was roused in the United States when President ROOSEVELT received Dr. BOOKER WASHINGTON and sat down to table with him. This, in Sir HARRY JOHNSTON'S opinion, was a manifestation of *race prejudice*—"nonsense which has got to be uprooted if the United States is logically to extend its beneficent governing influence beyond its actual geographical frontiers." Thus, in Sir HARRY JOHNSTON'S opinion, the solution of what is known as the "negro problem" is the eradication from the white man's mind of "race prejudice." He wishes to see the American receive the African in his midst "as a brother, but not as a brother-in-law." He pictures a future when the descendants of the 10,000,000 negroes and negroids now in the States will live harmoniously side by side with the whites and share equally all the privileges of the predominant race.

This view of a terribly important situation will not find favour in the United States, even, we think, among philosophers, and in our opinion Sir HARRY JOHNSTON under-estimates the strength and the nature of that remarkable trait of the Anglo-Saxon which he regards as race prejudice. The trait is one which ROBERT KNOX, the Edinburgh anatomist, recognised nearly a century ago as the predominating feature of the Anglo-Saxon. Politicians and anthropologists cannot blink its strength. Our home circumstances leave this quality latent, but we see that it quickly becomes alive when the Saxon passes oversea. Under its influence we see the Australians legislate to secure predominance and purity of race; we see, whether we agree or not, the new federation of South Africa leaves the native races outside the pale of its franchise; we see the Southern States elbow the coloured population quietly but effectively from the ballot-boxes, and the Northern States, which went to war for negro freedom, look coldly on. A survey of the history of colonisation shows that the Portuguese and Spaniards had a less degree of "race prejudice," with the result that their virile blood in the course of generations became lost in the veins of native races. Race prejudice, or race instinct as we prefer to call it, has preserved the Saxon blood amongst alien races; its very strength now makes the problem of our modern civilisation more difficult; there must be a constant war between the Saxon sense of justice and the Saxon sense of race purity. Hence it is that the prejudice becomes the dominant feeling in those living side by side with alien races; the sense of justice is dominant in those at a distance. We may not like the fact, but we cannot solve our difficulties by overlooking it. Those who have searched into the factors which have dominated the dispersion and differentiation of the human stock into the various forms we see to-day on the earth find in this irrational race-feeling a main driving force. The race survives as a race in so far as this instinct is implanted in it. Race instinct is as old as the human stock itself; it is not a late or petty mental acquisition that can be brushed lightly off or eradicated by education. It is a basal trait which anthropologists and politicians cannot afford to leave out of their calculations.

Annotations.

"Ne quid nimis."

NATURE AND NURTURE.

Professor Karl Pearson recently said—or said something very like it—that education and environment play only a small part in the formation of the individual. He spoke as president at a debate of an extremely polemical kind, held at University College, London, and this deliverance seemed to be directed to a doctrinaire gallery. But now that we have read his truly luminous pamphlet entitled "Nature and Nurture" we breathe freely, for in its pages he "makes good," as George Borrow would have said, an otherwise dubious utterance. "Nature and Nurture, the Problem of the Future" is the outcome of researches conducted at the Galton Laboratory for National Eugenics in University College, Gower-street, by Professor Pearson and his accomplished staff. "I believe," says Professor Pearson, speaking of the fact that our popular politics are mainly the result of sentimental generalisations and doctrinaire assertions, "that the day for acting merely on a consensus of opinion based on rhetorical or emotional appeal of a political or philanthropic character is passing by." This is our own belief also. In future statesmen and reformers will more and more base their views on careful inductions derived from scientific data, laboriously acquired and registered. The more data the better. The aim of the Galton Laboratory is to multiply them till their mere weight must necessarily convince the candid and the scientific-minded. "Nature and Nurture," which has already been a good deal discussed, deals with the old question as to the relative influence upon the individual of heredity and environment. There is a school which believes and declares that in three generations the descendants of any sort of parents can be made into anything—into persons of the highest culture or the most approved conventionality. These pseudo-thinkers forget *in limine* that inherited ill-health or disease, which has much to do with individuality, cannot be eliminated at will. "Dissipants," as the Americans now call them, will give birth to a progeny of vicious tendencies; insanity dies very hard, if it does not increase. Such a serious condition as deaf-mutism may become intensified. Cataract and epilepsy in some forms progress cumulatively. Nothing could be more luridly instructive than the pedigrees published in Professor Pearson's book. One such shows how a single blind man originated in four generations 15 blind descendants. In another—we purposely do not quote the extreme cases—we note "twenty abnormals in four generations, the product of two degenerates whose right to reproduce their kind should have been challenged by man from the start, as it would have been refused *a priori* by Nature." It is the business of the biometrician to attempt to establish laws with regard to these matters, or at any rate to supply matter for intelligent anticipation. Nature, of course, is, in the opinion of some, the

grand eugenist. The optimistic Longfellow called her a kind old mother, but, in their opinion, she is really a surgeon. And savages are the successful survivors of her age-long series of operations. We may here quote from a communication which has reached us recently on this very topic. The writer says: "In North Queensland, in the Arctic regions, in Central Africa, the savage tribe witnesses to the truth of the eugenic theories. The savage is a ruthless eugenist. He destroys the weakly as often as not at birth; he eats what the tribe cannot support. Cannibals have a keen eye for the weak and the superfluous, as well as for the obese and unwieldy, and cannibals, unhampered by social wreckage, are persons of magnificent physique and often of high intelligence and good tribal morals. Witness the Papuans as described by Dr. C. G. Seligmann in his last book. The teeth of savages excite our envy; they are the direct result of the survival of the fittest. To eat raw or tough meat in quantities and to support life thereon in a severe climate the savage needs the teeth of a wild animal." Our correspondent is here a little too sweeping, for it is notorious that the teeth of many wild animals, herbivorous and carnivorous, are frequently subject to gross caries, but his general argument is weighty. We still quote the formula about the greatest good of the greatest number, but many of the more thoughtful among us are inclined to revise this rough-and-ready teaching in the light of modern science, and substitute for "the greatest number," "the best." The greatest good of the best—that seems to be the aim set before the scientific reformer to-day. It is an aristocratic aim in the finest sense. Yet it does not militate against the democratic increase of the best.

THE RETIREMENT OF DR. E. C. SEATON.

THE announcement that Dr. Seaton, the county medical officer of health of Surrey, has been appointed consulting medical officer of health, and that he has thus relinquished the more active rôle of administration for its reflective and advisory aspects, recalls the prominent part he has taken in many public health matters which are now accomplished facts, but which, when he entered the public health arena some 40 years ago, were but just, as it were, being brought into the battle line. The name of Seaton is intimately bound up with the sanitation of the last 50 years, Dr. Seaton's father having occupied between the incumbencies of Sir John Simon and Sir George Buchanan the important post of principal medical officer to the Local Government Board at a time when vaccination administration was in the making, and his writings upon this subject are well-known classics. The present Dr. Seaton has had an almost unique experience. As early as 1871 he assisted in the sanitary inspection of Oxford during an outbreak of enteric fever, and in the following year he was appointed an assistant Commissioner for inspecting school children in Lancashire and Cheshire in connexion with Mr. Mundella's Commission. As medical officer of health for Nottingham in 1875 he was instrumental in declaring the first "unhealthy area" under the Housing Act of that year, and in 1878 he obtained the insertion into a local Act of a clause for the notification of infectious diseases, this same clause subsequently becoming the basis of the Infectious Diseases Notification Act of 1889. Later, when medical officer of health of Chelsea, he secured the appointment of a committee which subsequently induced the Local Government Board to bring about the admission of students into the hospitals of the Metropolitan Asylums Board. In 1890 the Surrey county council decided to take the lead in appointing a county medical officer of health, and for this post Dr. Seaton was selected. The difficulties of the work which devolved upon him in coördinating the work of the several districts were very great, more especially as at that time there were no precedents and very few powers, but Dr. Seaton's efforts in the direction of promoting the harmonious working of the several districts and officials were highly successful, and the progress which has been made in Surrey in the matter of isolation accommodation, housing, water-supply, and the purification of rivers is due in no small degree to Dr. Seaton's tact and judgment. Dr. Seaton has held many important examinerships in public health in the Universities of Oxford, Cambridge, London, and elsewhere. He was, too, chairman of the Board of Studies in Hygiene and Public Health in London University, in which capacity he displayed much discrimination and powers of leadership. On his resignation, when he was succeeded by Sir Shirley F. Murphy, the board marked its appreciation of his services by nominating him for election as Chadwick lecturer. The lectures, which will be looked forward to with much interest, will, we believe, be delivered before the University of London in November next. Dr. Seaton has, we trust, many years of active usefulness before him, and doubtless his less exacting position as consultant as far as Surrey county is concerned will afford him leisure to devote to outside calls the knowledge and experience which he has acquired in so long and so distinguished a career.

TRANSITORY HEMIPLEGIA IN HEART DISEASE.

PARALYSIS in heart disease due to cerebral embolism, thrombosis, or hæmorrhage is well known. In recent years French writers have drawn attention to a transitory form of hemiplegia not due to any of these causes, of which the pathogenesis offers an interesting problem. At a meeting of the Société Médicale des Hôpitaux of Paris on June 3rd M. E. Hirtz and M. Beaufumé reported the following case. A woman, aged 49 years, was admitted into the Necker Hospital on Jan. 20th, 1910. She had had rheumatic fever twice—at the ages of 9 and 39 years respectively. Since July, 1908, she had frequently been treated at the hospital for mitro-aortic disease with asystole and ascites. Paracentesis was performed 13 times, for the last time at the end of November, 1909. In January, 1910, the abdomen was again much enlarged, but the patient could follow her occupation of housekeeper. About Jan. 14th she was seized with right frontal headache, diurnal and nocturnal, and felt giddy on rising with a tendency to fall backwards, but this condition disappeared after sitting down for some minutes. On the 19th she went to bed as usual and about 2 A.M. she felt a violent desire to micturate, but found that she could not get up or speak to awake her husband. She made great efforts to get out of bed and in the end succeeded. She found that she was paralysed on the left side in the face and arm and almost completely in the leg. On admission there was left hemiplegia with marked dysarthria. The left side of the face was flaccid and drooping; the labial commissure was depressed and she could not whistle. The left eye could be shut, but not so well as the right. The tongue was slightly deviated to the left. She could not speak, and stammered in an incomprehensible manner. The left leg was partly paralysed. The reflexes were diminished on the left side; Babinski's sign was absent. There were dyspnœa (the respirations numbering 36), marked ascites, œdema of the legs, and double hydrothorax. The heart was dilated and there was a prolonged systolic murmur at the apex and another systolic murmur at the base. The urine was high coloured and slightly albuminous. Paracentesis abdominis was performed, and after 4 or 5 litres of fluid had escaped the patient could pronounce some words; then she could move the fingers of the left hand and finally the wrist. Towards the end of the operation, which occupied 15 minutes and yielded about 10 litres of fluid, the face was less deviated and the patient could speak almost normally;

the left hand could be placed on the head, and almost all the movements of the leg were regained. Half an hour after the operation recovery from the paralysis was complete. Other cases of transitory hemiplegia in heart disease have been recorded by French writers. Constantin Paul in his work on heart disease (1883) mentions the case of a woman, aged 64 years, suffering from chronic myocarditis, who, after an effort, was seized with right hemiplegia, not accompanied with aphasia. The symptoms disappeared in four hours. In 1897 Achard and Lévi recorded two cases of the same class. A woman, aged 64 years, with mitral stenosis and asystole, had first right inferior facial paralysis which lasted four days, and 15 days later paralysis of the opposite side of the face with paresis of the upper limb; death occurred at the end of two days. In the second case a woman, aged 35 years, with well-compensated mitral stenosis, was seized with complete left facial paralysis, and then with paralysis of the left sixth nerve and transient paresis of the left arm. All the symptoms disappeared in five days. Several explanations of these transitory paralyses have been given. Paul attributes them to cerebral anæmia. Achard and Lévi compared them to the transitory paralyses of uræmia and hepatic toxæmia, and ascribe them to the auto-intoxication of heart disease. Later Achard suggested that they are due to circulatory troubles in the brain—cerebral œdema and dropsy of the ventricles. M. Hirtz and M. Beaufumé point out that their case shows that the paralysis depends on a mechanical cause—cerebral congestion or œdema—which was relieved by the paracentesis. This view is supported by the fact that in Achard and Lévi's first case the necropsy showed considerable submeningeal œdema with congestion, most marked in the Rolandic area.

THE PEKING HOSPITAL.

THE Peking Hospital is the oldest and one of the biggest hospitals in China. It was founded in 1861 by the late Dr. W. Lockhart, who came to China as a medical missionary in 1838. It now furnishes the clinical material for the Union Medical College, the leading medical school, native or foreign, of the empire. It is a matter of regret that with such a wealth of cases no accurate statistics have been kept, but as the hospital was for many years run single handed by a succession of overworked medical missionaries such bookkeeping was not found possible. At the present time over 19,000 patients pass through it annually. In the absence of statistics Dr. H. V. Wenham (who takes a large part in the work of the hospital and college, and who is clinical tutor to the students) has been good enough to give us the following notes of his general impressions of the work undertaken in a locality where there is abundant scope for research as in North China. There are many points of difference in the manifestations of disease in China from those observed at home, the system of diet and general mode of life of the Chinese differing markedly from those of Europeans. Epidemics arise and work out their ravages unchecked, microbic transmission of disease being as yet nationally unrecognised. Dr. Wenham says: "The great and outstanding impression is that of the plague of tubercle. Every form is met with from the most acute to the most chronic; the various forms of localised tubercle in bones, glands, &c., are exceedingly common. This seems strange in the light of recently expressed views, since the average Chinaman never uses milk and never eats beef, neither are children fed on cows' milk. Their food has much opportunity for contamination by dust and flies, and the frequency with which tubercular disease follows on traumatism is noticeable. The lack of any facilities for open-air or sanatorium 'cure' renders the treatment of these cases peculiarly depressing. At the same time one feels that with such facilities there would be for many a hopeful outlook, for the dry, sunny climate of North China, with its cold, bracing winter, renders it an ideal place for the treatment of tubercle if the patient can be removed from the dust and dirt of towns. Even without such treatment many remarkable instances of natural cure take place—as, for instance, the case of a boy who came to hospital more than a year ago in a desperate condition with a tubercular pyo-pneumothorax, already ruptured, and who is to-day able to do work as a messenger. Venereal diseases, with all their complications, are exceedingly common; so, again, are fistulæ in ano, for which there is no entirely satisfactory explanation, though undoubtedly many are tuberculous. Ascaris lumbricoides is regarded as part of the natural intestinal fauna. Tumours, both innocent and malignant, are very common, especially at sites of chronic irritation, as, for instance, in scars or beneath a tight prepuce; but the exact nature of these needs further investigation. Every variety of tumour is met with, but rodent ulcer and epithelioma are the most noticeable. On the medical side there is a conspicuous absence of acute rheumatism, though chronic osteo-arthritis is very common. As a sequence mitral disease is not frequent but aortic is common, probably from the frequent association of syphilis. Acute pneumonia is rare. Typhoid, typhus, and the infective exanthemata, though always present, do not ravage the community so severely as one would expect in a large city like Peking, where there is complete absence of sanitary precautions, no proper drainage, and no attempt at isolation. Presumably the inhabitants in the course of centuries have reached a stage of natural immunity unknown to us at home. Diphtheria causes many deaths, infant mortality is high and tetanus neonatorum common. A list of the more important cases other than tuberculous which have been met with in the course of the last year of hospital practice will give a good idea of the scope for medical practice and investigation in North China. On the medical side were seen: Typhoid fever (one case developed double suppurative parotitis and yet recovered); typhus, relapsing fever; cerebro-spinal meningitis, the diplococcus being readily identified by lumbar puncture; mitral disease rare, aortic common; nephritis common; osteo-arthritis common; leprosy, nodular and anæsthetic (all from cases imported from South China); infantile paralysis frequent; rickets very rare; hemiplegia common; tabes dorsalis; spastic paraplegia; hypertrophic muscular paralysis; and paralysis agitans. On the surgical side: Tumours of all kinds; hernia, both acquired and congenital, inguinal are common (the latter included one interstitial hernia)—we have also seen a case of femoral hernia in a man; rupture of ulnar artery due to acupuncture; fistula and necrosis of bone, both exceedingly common; stricture of urethra, very common; calculus and papillomata of bladder; tetanus following dirty wounds; hydrophobia, beyond the reach of Pasteur treatment; and gangrene, common in winter months." The foregoing list is, we are informed by our Peking correspondent, a good *résumé* of the main lines of hospital work in China.

THE OPERATIVE TREATMENT OF FRACTURES.

IN the Surgical Section of the British Medical Association at its recent annual meeting there was a discussion on the Operative Treatment of Fractures.[1] It was opened by Mr. Arbuthnot Lane, the protagonist of the new method, and many decided opinions were expressed on both sides of the controversy. As a result of the interest felt in this important matter the Section passed a resolution requesting

[1] THE LANCET, July 30th, 1910, p. 348.

the Council of the Association to appoint a commission to inquire into the question of the results obtained in the treatment of fractures by operative and non-operative methods. We await with anxiety the report of the commission, though doubtless many months must elapse before any report can be ready. It is difficult to overrate the importance to the community of the decision on this matter. The inquiry must include the examination of the results of the older method, both at its best as well as at its worst; and the same will, of course, apply to the more recent operative method, for it would surely not be fair to compare the best results obtained by so skilful a surgeon as Mr. Lane with the non-operative results of a medical practitioner who has not devoted special attention to this branch of surgery. The collection of material for the report will be a valuable work, and we trust that a very large number of surgeons will coöperate in the carrying out of a valuable investigation.

TYPHOID SPERMATOCYSTITIS AND PROSTATITIS.

IT is now recognised that so-called enteric fever is a general infection with the typhoid bacillus, and that the "complications" are inflammations produced locally by the bacillus. To the long list of these lesions, involving almost every structure in the body, Dr. J. W. Marchildon, assistant professor of bacteriology in St. Louis University, working under Professor Pick at the Städtisches Krankenhaus in Friedrichshain, Berlin, has added two—spermatocystitis and prostatitis. He has reported the results of his investigation in the *American Journal of the Medical Sciences* for July. It has been shown that apparently healthy people (typhoid carriers) may have typhoid bacilli in their bladders for years after an attack of enteric fever. It appears that during the attack they are excreted by the kidney, and that the urine becomes a culture medium for them. In some cases cystitis is produced, in others there is merely bacilluria. Hence it has been recommended to give some urinary bactericide during convalescence from enteric fever. In some cases so treated the bacilli disappear from the urine, but reappear a few weeks after the treatment is stopped. This result has been attributed to the presence of ulcerative cystitis, which is a source of infection. That this is not the only explanation Dr. Marchildon found in the two following cases. A lad, aged 17 years, was admitted into hospital comatose on the fourteenth day of a severe attack of enteric fever, and he died at the end of nine days from perforation. At the necropsy Professor Pick found typhoid ulceration of the ileum with perforation, fibrino-purulent peritonitis, cystitis with a small hæmorrhage, purulent spermatocystitis and inflammation of the right vas deferens, ulcer on the epiglottis, parenchymatous nephritis with miliary abscesses, obliterative pleurisy, and bronchitis. The seminal vesicles were enlarged and reddened and fluctuated. They contained purulent fluid from which the typhoid bacillus was cultivated. Microscopic examination of the left vesicle showed that the mucosa was in some places destroyed and in others distorted and infiltrated. The lumina were dilated and filled with an acute cellular exudate which was partly necrotic and showed clumps of typhoid bacilli. The prostate was normal. In the second case a man, aged 28 years, was admitted into hospital with the diagnosis of typhoid fever of about ten days' duration. Death from hæmorrhage from the bowel occurred four days later. At the necropsy Professor Pick found typhoid ulceration of the ileum, icterus, acute enlargement of the spleen, parenchymatous nephritis with small abscesses, acute purulent prostatitis, enlarged mesenteric glands, and acute catarrh of the duodenum. The prostate gland was enlarged, especially in the right lobe. There was an area of the size of a bean containing purulent granular material. On pressure pus exuded from the lobes. From the spleen, lymphatic glands, and prostate gland the typhoid bacillus was cultivated. Microscopic examination of the prostate gland showed an acute purulent exudation with breaking down of the glandular cells. The vesiculæ seminales were normal. Dr. Marchildon suggests that after enteric fever the prostate gland and vesiculæ seminales may harbour typhoid bacilli for a long time, and that the bacilli may readily pass into the urine with the semen or prostatic secretion, reach the bladder, and produce typhoid bacilluria. Thus may be explained the recurrence of typhoid bacilluria after suspension of treatment. The importance of this subject in connexion with typhoid carriers is obvious.

CENTRAL PUBLIC-HOUSE TRUST ASSOCIATION.

THE annual report of the association shows that the number of Public-house Trust companies remains the same as last year, 37, while the number of houses under Trust management is now 262. It is satisfactory to note that out of the 37 companies only seven are not yet in the position of paying a dividend. The principal development of the Public-house Trust movement during the past twelve-month has been in the home counties, the Herts and Essex Trust Company having extended its operations to Middlesex, Bedfordshire, Berkshire, Buckinghamshire, Oxfordshire, Leicestershire, and Rutland, a plan which saves preliminary costs and costs of central management. New licences have been granted at Crosby (Lincs.), Harden and Thorne Collieries, and at the Edinburgh corporation markets at Gorgie. We are glad to see that the movement is making steady progress, not only in extension of area and in number of houses controlled, but also in the direction of developing the trade in food and non-alcoholics at the expense of the alcoholic trade. The report calls forcible attention to the operation of the Finance Act, and points out that its present provisions penalise improvements designed to build up a non-alcoholic trade and to further the progressive reforms of the Trust Association. The association recommends that the tax should be not upon the premises (thus penalising tea- and dining-room accommodation), but upon the trade which is created by the licence—i.e., the trade in alcoholic drinks. It would certainly be regrettable if it were found that the Finance Act placed a serious obstacle in the way of such an excellent movement as that of the Public-house Trust Association.

THE DIAGNOSIS OF MALIGNANT DISEASE.

IN another column we publish an article by Dr. Elsie M. Royle on the aid which chemical examination of the urine may afford in the diagnosis of malignant disease. Dr. Royle's investigations have enabled her to prove that in cases of cancer the uric acid is usually higher than is found in healthy cases under similar conditions; further, that the output of phosphates in the urine is in the majority of cases of cancer decreased when compared with healthy individuals; and finally, that the ratio of $\frac{\text{phosphates}}{\text{uric acid}}$ is almost invariably reduced in malignant disease. Acting on these results Dr. Royle suggests that a chemical analysis of the urine may prove of value as an aid to diagnosis in obscure cases of cancer, especially when the abdominal organs are the seat of the disease. The differential diagnosis of malignant disease from gall-stones, gastric ulcer, chronic pancreatitis, and other morbid conditions is frequently very difficult and any reliable auxiliary test would be welcome. Dr. Royle, however, prudently observes that her investigations are not complete and that this communication is

only intended as a preliminary one. The cases she has examined point to the proposed test as a useful one, but before the value in diagnosis of the facts proved in her paper can be clearly established it will be necessary to determine how far they are true of other forms of cachexia, and what their relation may be to the secondary anæmia usually present in malignant disease. Dr. Royle is at present engaged in working out these questions, and the results will be awaited with interest. The technique of the chemical tests is not a complicated one.

THE King has augmented his yearly subscription to King Edward's Hospital Fund for London from £500 to £1000, and His Majesty is anxious that the date of augmentation should coincide with that of his first visit to the London Hospital since the accession. His Royal Highness the Prince of Wales has forwarded £100 to King Edward's Hospital Fund as an annual subscription.

THE King has granted to Dr. Hugh Campbell Highet, medical officer of health at Bangkok, His Majesty's Royal licence and authority to accept and wear the Order of the White Elephant of the Third Class, which has been conferred upon him by His Majesty the King of Siam in recognition of valuable services rendered.

AMONG those to whom His Majesty the King, Sovereign of The Order of Mercy, has been graciously pleased to sanction the award of the Order are Mr. A. T. Scott, M.R.C.S. Eng., and Mr. W. Chearnley Smith, M.B., C.M. Edin.

ON the recommendation of the Prime Minister, the King has sent from His Majesty's Royal Bounty £150 to the fund which Sir William P. Treloar is raising on behalf of the widow of the late Mr. H. W. Cox and her family.

Mr. John Hammond Morgan, C.V.O., F.R.C.S. Eng., has been promoted from Honorary Associate to Knight of Grace of the Order of the Hospital of St. John of Jerusalem in England.

PORTSEA IMPROVEMENT SCHEME.—An admirable scheme for the improvement of Portsea (Portsmouth) has been drafted by Dr. A. Mearns Fraser, the medical officer of health. The available area is very rigidly bounded, and consists of some 2¼ acres, on which it is proposed to erect 46 houses, roughly 20 houses per acre, to let at rents of 7*s.* and 7*s.* 6*d.* (inclusive of rates and taxes) in the case of residences and at 8*s.* 6*d.*, plus rates and taxes, in the case of four shops. It is proposed to lay out this area as one long road, 40 feet wide, stretching from Queen-street to Kent-street. The road will be planted with trees, the houses set back from the road, and a portion of ground, about 1000 square yards in area, between the road and the houses will be used as an open space, planted with trees, and asphalted. Four different types of houses are provided, each being carefully designed to meet the requirements of some particular class of tenant. The houses are a great improvement on many working-class dwellings, the report stating that the object has been to design "more healthy, more convenient, and more cheerful houses" than has often been done. As Dr. Mearns Fraser points out, "it is but little more costly to make a beautiful than an ugly street," and the reconstruction when finished will add a very handsome and attractive road and effect an extraordinary improvement in Portsea. The report further points out that the scheme may be continued at some future time so as to give St. George's-square an approach through into Queen-street, and incidentally transform the worst conglomeration of slum property in the borough into a model working-class residential neighbourhood. Improvements of this character must add very greatly to the health of the district, and Dr. Mearns Fraser is to be congratulated on an excellent piece of constructive work.

PUBLIC HEALTH ADMINISTRATION IN HAMBURG.

BY W. E. HOME, M.D., B.SC. EDIN., M.R.C.P. EDIN., D.P.H. R.C.P.S. EDIN.,
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The Disinfecting Station.

BY the kind permission of Professor Medizinalrat Dr. Nocht I was recently permitted to learn something of the methods of disinfection practised in Hamburg and to visit the central disinfecting station.

Hamburg is a city of 800,000 inhabitants. All its institutions are on a large scale, so one is not surprised to find that this one department of the sanitary administration of the city employs 214 men. When notification of a case of infectious disease has been received and disinfection ordered, the sanitary authorities send out a party of disinfectors dresssed in sterilised overalls, cap, blouse, trousers, and boots, and (in case of plague) gloves, too. These men collect the articles to be disinfected, sprinkle them with disinfectant, and roll them in sheets, over which an impervious cover is now fastened to confine the infection as much as possible. The room or house is then cleaned, special care being taken to clean the walls and floors of sputa which may possibly be tuberculous. After this formalin vapour, produced by boiling the solution, is employed. The materials for disinfection are removed to the central station, where the men who have done the work get hot baths and change their suits. Meanwhile the room, every crevice in which has been pasted up, is saturated with formaldehyde. When this saturation has continued long enough liquor ammoniæ is boiled into the room through a keyhole; thus the acid is neutralised and the room can be entered and aired.

The disinfecting station to which the fomites are removed is divided into two, the infected side and the clean side. These departments are divided by a wall 50 yards long, which runs through the establishment. This wall has no doors but is pierced by six steam disinfectors and by the bath rooms for men and women. Each side has its own staff, and to get from one side to the other it is necessary to pass through the open air. In this way the attendants are prevented from negligently crossing without disinfecting themselves, and so accidents are avoided. Clothes and furniture for disinfection are examined on arrival at this station; if grossly soiled they are first boiled for an hour, but if fit for disinfection they are carefully numbered and labelled. The disinfection is done by a current of steam at 102° C. and the articles are laid out on the trays of the disinfectors (iron frames with wire meshes which are covered with coarse sacking); at this temperature the clothes are not scorched. Five of these disinfectors are large ovals and are worked by current steam at 102° C.; another smaller circular disinfector is used for delicate materials, for leather, &c. In this under reduced pressure (water boiling at 80° C.) infected articles are exposed to formalin and steam. This method is more expensive, but so far no complaints of damage have been made. There is also a temporary chamber for the formalin disinfection of articles insufficient in number to fill one of the large steam disinfectors. A single disinfection in the large apparatus costs 4*s.*

The bath rooms for infected persons run completely across the building. They are entered from the infected yard and their exit is in the disinfected yard. The bathers enter, take their clothes off, and send them up in a lift to be disinfected. They then spend an hour or so taking their baths. A notice which I saw gives very complete directions for the cleansing of hands. The nails are to be cut and scrubbed, the space under the nail and the nail fold are to be cleaned with the scissors supplied, then the hands are scrubbed first with disinfectant and then with spirit. Next the hair (it was in the temporarily unoccupied ladies' division I read the notice) must be washed and cleaned with spirit under the supervision of the bath attendant. After this a bathing-cap is put on in order that the hair may not become wet in the ensuing bath. When the bath is completed the "contact" passes to the clean side, where the now disinfected clothes are received down a lift, and the disinfecting process concludes. An inventory of the clothes for disinfection which have been taken from the infected side has

to be sent to the clean side, so it is put into the disinfector with the clothes. The list is written on a buff glazed paper, which in saturated steam at 102° C., but not at lower temperature, loses its glaze after ten minutes or so; hence, at the end of the process this inventory becomes evidence that the matters named on it have been exposed to a temperature of 102° for the required time. Tests are also made occasionally with fusible alloys to make certain that this temperature is reached everywhere in the disinfector.

On each side of the dividing wall there are rooms for the staff, and a small mess-room with cooking stove and cupboards for each man's personal clothing. The bath equipment is complete, and it is proudly held in the disinfecting station that the staff, concerned with the dirtiest work of Hamburg, are yet the cleanest body of men in the town.

In the storehouse I found each man's working suit being laid out in preparation for the next day—cap, blouse, trousers, scrubber, brushes, towel, dusters, &c., all sterilised since last used. I was shown the carbolic acid and formalin disinfection outfits, packed in boxes containing everything experience has proved necessary—soft soap, disinfectant, measures, brushes for the furniture, brushes for the corners of rooms, brushes for paste, brushes for glue, candles, matches, hammer, nails, safety ropes for men working at windows, clothes lines on which to hang clothes for formalin disinfection, and clothes pins for use therewith, scrapers for removing tuberculous sputum, a telescopic arrangement of buckets which, when the buckets are separated, inverted, and built up on one another, makes a ladder. The final proof of the care which is exercised is furnished by the two pieces of wood, socketed to form a cross, which are used for placing under buckets of hot water in order to prevent their marking the polished floors. All this appealed to me very strongly, it so accurately resembled the methods evolved for war service. As Inspector Riecke, who conducted me, remarked, "We are always in preparation as for active service and have all our stores ready in case of an epidemic." In their pigeon-hole are 100 tiny wooden scoops for ladling out chloride of lime here, new boots labelled for each of the staff hung up there.

Here also is a laundry which washes for the poorhouse and for the disinfecting station. There is an excellently equipped drying-room, with fan exhaust. The clothes put in at one end are gradually carried to the other on rods supported on the links of slowly moving chains. The waste water from the baths, &c., is all disinfected by chloride of lime in a large tank before it is passed to the drains. Poison for rats is also prepared for the town in this disinfecting station. I have since seen a chart of the distribution of phthisical cases in Hamburg showing no aggregation suggesting that the disease clung to particular houses, and this result is claimed to be due to the very thorough methods of disinfection employed.

The Water-supply.

Hamburg in 1892, drawing its water unfiltered from the Elbe, experienced the disaster of a very severe cholera epidemic. 18,000 cases were notified and 8000 deaths occurred. Her merchants say that the consequent diversion of trade to other ports cost them millions. The whole story was told at length in the columns of THE LANCET by Professor Pettenkofer and Sir Richard Thorne Thorne.[1] Hamburg profited by the lesson this apparently overwhelming calamity taught her. She arranged, at great cost, to filter the water from the Elbe and to draw it from a safer intake, thus escaping not only cholera that was occasional but typhoid fever that was perennial. The sanitary authorities by their success won the confidence and gratitude of the merchants. Hence their well-staffed laboratories and splendid institutions for the preservation of the public health.

Through the courtesy of Dr. Dunbar, director of the Hygienic Institute, I was permitted to join a party which Dr. Schwarz was taking to inspect the waterworks.

The waterworks are on an island above the city, so that the intake is some five miles above the sewer outfall. Ships and barges are forbidden to anchor within a mile or so of the intake and are heavily fined if they do. The main risk is the carriage of sewage to the intake by the tide, so no water is taken for an hour or two before or after high water, when the risk is greatest.

In the laboratory Dr. Nachtigall showed us how little sediment there is in the water before it is treated and how much brighter it becomes when 40 milligrammes of alum is added to each litre and the precipitate has settled out. This process is used here on the large scale.

Gross dirt is removed by screens and the water is pumped into a small pond from which it flows through a channel into the great settling basins. The stream is about six feet wide and a few inches deep; across it lies the trough that delivers the alum solution; above this green algæ grow freely, but at this line they cease.

There are three settling basins; each holds a day's supply. As the water passes from basin to basin through culverts four feet below the surface it is constantly losing micro-organisms. It is next pumped into the filter-beds, 22 in number, larger, they say, than any elsewhere except in London. Baumeister Bergiest explained to us, by the help of a large map, the arrangement of the waterworks, and showed us sections of the filters and models of the filter-beds and their valve houses. The filter-beds are made up with a metre of sand over the stones. As it gets clogged on the surface the upper sand is scraped away gradually until 40 centimetres have been removed. The filter is then put out of action, clean sand is added, filtered water is filled into it from below, and the unfiltered water can again be turned on above. We inspected an ingenious arrangement for washing the sand with the least possible labour and a minimum of water. When scraped off the beds it gives a dark mahogany colour to the water it is shaken up with, the visible impurities being mainly algæ and some small fish.

These filters are not covered (the island is scarcely solid enough), consequently the frost in winter is a source of anxiety. "I did not sleep well during three months in 1910," said our mentor, as he showed us photographs of the great masses of ice he had to deal with, and explained the measures he had to take so that the water-supply for these 800,000 people should not fail.

The methods of treatment are devised in the Waterworks Laboratory, while as a control the Hygienic Institute in the city examines the water twice daily. Although the authorities in their definitions take the broadest view, and include all organisms which could possibly be called "coli," they are unable to find this group in the water from the works, which supply four-fifths of that delivered to Hamburg. The remaining fifth comes from deep (300 feet) artesian wells, which we also saw. The water rises almost to the surface, but some pumping is required. The pumps are driven, not by leather belting, but by steel bands, I suppose $36' \times 3'' \times \frac{1}{8}''$, an experimental fitting, but giving satisfaction. The water, which is chalybeate, is sprayed into great tanks to oxidise and eliminate its iron. These tanks are under cover, and the roof over them is heated in winter to prevent water condensing on it and falling back into the tanks. After settling, the water is filtered, the flow through the filters being kept constant, and when the head of water required reaches 60 centimetres that filter is cleaned. This process quite removes the chalybeate taste. We completed our visit in a fine steam launch, an appanage of the Hygienic Institute, thoughtfully put at our disposal to give us the advantage of a most interesting cruise through the busy and extensive harbour, of which Hamburg is justly so proud. The launch is named *Gaffky*, after the eminent discoverer of the bacillus typhosus, who worked in Hamburg in 1892.

I greatly regret I did not also see the waterworks of Altona. They supply a smaller population, but the difficulties to be overcome appear to be greater, although these are met as successfully; for they take water from the Elbe six miles below both cities, yet I heard no complaint against the water they supply. This water-supply of Hamburg and Altona is of particular interest at present, as the problems are similar to those now pressing for settlement in Cairo.

The Treatment of Sewage.

Close to the large Eppendorf Hospital, in a beautiful park, is a small laboratory which takes 5 per cent. of the hospital sewage and passes it through an experimental equipment, consisting of first a settling tank, then three septic tanks uncovered but overlaid by a bacterial scum, and then contact beds of various pattern. The septic tanks are cleansed twice a year and the 10 inches of sludge used as manure for the hospital gardens. The workers in this laboratory investigate all the problems of sewage disposal, and recently have concerned themselves with finding out how much chloride of lime is required to sterilise sewage (in Germany sewage of infectious hospitals is all sterilised before discharge to the drains), and their results are very similar to those of Dr. Phelps of the Massachusetts Board of Health.

[1] THE LANCET, Nov. 19th, 1892, p. 1182; Nov. 20th, 1893, p. 1217; and July 1st, 1893, p. 50.

I imagine that they hope, in time, to be able usefully to treat, biologically or chemically, all the sewage of Hamburg before its discharge into the Elbe. At present this sewage is treated mechanically only. The sewer outfall is close to the great landing stage; here all the sewers empty into a mixing room, from which the sewage passes to a sand catch, 6 metres deep, with a discharge, 2 metres in diameter, centred 3 metres above the floor. Detritus off the roads settles here, carrying down other suspended matters, all of which are removed by ordinary dredging buckets which drop their spoil on a travelling horizontal belt which ultimately spills it into trucks. The sewage passes on into the river, but on its way flows through a revolving screen, grating, or comb, to which all large floating matters adhere. This revolves gradually out of the water and as it turns over the bar at the top all these matters are scraped off and fall on a second travelling band which spills them into another truck. The contents of both trucks are taken across the river in barges and sold to farmers on the west side of the Elbe.

One cannot say enough in thanks to officials who strive patiently that inexpert foreigners, unfamiliar with their language too, may learn to understand these well-planned installations.

The Slaughter-house.

The Hamburg slaughter-house has already been described in THE LANCET[2] as having "splendid business arrangements." It deserves all praise. It is spacious and beautifully clean. The hall in which oxen are slaughtered is 130 yards long, 25 yards wide, and makes one think of a narrow drill-hall. There is not a single partition on the floor. The hall is well ventilated and brilliantly lighted by large windows in the sides and in the clerestory. There are no private booths for butchers; all the slaughtering and the dressing of the carcasses is done in the open under the eyes of the inspectors. Since there are so few corners, cleanliness is more thoroughly attained, and it is hoped that the meat keeps better. To diminish saprophytic infection of the meat, the gullet is clamped or tied when the carcass is being dressed and the offal is removed unopened to the neighbouring room where it is cleaned. It is calculated that an expenditure of 100 gallons of water is necessary for the cleaning up after each animal slaughtered. As this hall was built with abundant capital, expense has not been spared; there are winches and overhead rails in plenty, so the labour of slaughtering is less than in private slaughterhouses I know of. Further, the slaughtermen are far better off. They all wear long boots to their knees, which keep them cleaner; they have bathrooms, and there are cloak-rooms for their working or private suits. The splendid lighting of the hall prevents many accidents.

The animals are inspected before and after slaughter. If the meat is fit for food the principal portions are stamped. No meat can be sold without this stamp. In one year 60,000 oxen, 54,000 calves, 88,000 sheep, and 283,000 pigs were killed at this slaughter-house. Of the oxen 33 per cent. were more or less tuberculosed, but only ½ per cent. of the carcasses were utterly condemned. Of pigs 7 per cent. were declared infected, and here again only 0·3 per cent. were wholly condemned. This shows a difference from our practice in England of condemning a whole carcass of pork if tubercle is found anywhere. Some meat not wholly condemned is boiled thoroughly in the slaughter-house, and is then permitted to be sold by retail.

The charges for slaughtering are: each ox 3*s.* 6*d.*, calf 1*s.* 2½*d.*, pig 1*s.* 5*d.*, sheep 5*d.*, and horse 5*s.* The cost (7*d.*) of examining a pig for trichina is included. There are 94 trichina examiners. The fees for trichina examination work out at an average of £94 per examiner per annum.

I did not know enough German to find out their principles of meat condemnation, but while I was looking for the condemned meat store I chanced upon a most interesting department—the museum of veterinary pathology. As I entered it was obvious I was a foreigner, and as soon as I said that I was a doctor the director himself most kindly got up and showed me the carefully prepared specimens in his extensive museum—a museum which is growing rapidly and should obtain everything of interest that reaches the slaughter-house, as a staff of 17 veterinary surgeons are always at work in the building. He showed me specimens of new growths, simple and malignant, parasites, actinomycosis, anthrax and farcy, tubercle in joints of cattle, teratomata, and pathological conditions—e.g., endo-, peri-, and epi-carditis of sheep, &c.

There are many other sections—a knacker's yard, a quarantine slaughter-yard, and a margarine factory. As I leave the place I wonder if anyone could visit it and still believe that private slaughter-houses should be tolerated.

The Housing of the Working Classes.

Hamburg had a great fire in 1842, when a large part of the oldest portion of the town was burned down; it has therefore fewer overcrowded areas than most cities. Still, improvement schemes are continually being brought forward and carried out. The necessity for extra accommodation in each area for the people who have been dislodged from condemned houses is met by putting on extra storeys to the new houses. But, in point of fact, the old inhabitants do not return, they crowd into other houses little better than those they left, while, as so often occurs in England, the new houses are occupied by a better class. The sanitary board improves back-to-back houses in a very thrifty manner, new to me, and apparently satisfactory. An ordinance was passed in 1882 requiring that every inhabited room should have a window. To meet this ordinance it sank (all along a row of back-to-back houses) a series of shafts, some 8 feet square, at points which would permit their reaching the adjacent corners of four houses. Thus each room lost some 16 superficial feet out of the corner, and walls were built up here with a window into the shaft to allow perflation. Now that they have the windows these are often left unopened. One lady explained that this was because cats came in. They are all casement, not sash, windows. Even in these courts and among these altered back-to-back houses in probably the most crowded slums in the town, the ground was paved and the children were clean, lively, and tidily dressed. But I was told, "If parents do not keep their children clean and tidy we prosecute them and send them to prison." I certainly, in a fortnight spent in Hamburg, saw no child barefoot, no disgracefully broken or ill-fitting boots on children, and cannot remember seeing any rags. Such things, like many other undesirable manners and customs, are in Germany "verboten."

New houses must have 800 cubic feet of air space for each adult, 400 for each child up to 14 years. In sleeping rooms 530 cubic feet are allowed for an adult, 266 for a child, and right of entry is secured for inspectors to ensure obedience to these regulations. The landlord must provide a water-closet for every 12 persons or two families, either in the house or just outside. The police see that these are kept clean, and certainly the examples that I saw were so. One hears at home strange stories of German bureaucracy and of the tyranny of officials, but I noticed that the people in Hamburg were quite glad to welcome the sanitary officials, and invited us in to see how their houses had been improved. Sometimes this improvement was decidedly rough. I was shown a place where a low-lying quarter had formerly been liable to flooding at every high tide with water 2 or 3 feet deep in the streets. This was dealt with by filling the streets and the ground floors of the houses up to 6 or 8 feet with sand. The level was thus raised and new front doors and shops were opened in the old first floors.

The Cemetery.

The Ohlsdorf Cemetery, which covers an area of 450 acres, deserves mention. On an elevated sandy knoll 4 miles from the town, it was planned out by men who, like those who built the Rathaus, or Senate House, were confident of the great future before Hamburg and built on a large scale in consequence. Great avenues were marked out by planting trees in quantities—conifers, cypresses, planes, limes, and beeches. In secluded nooks are the burying-places of the wealthy. The smaller people have their grave areas in avenues backed by tall cypresses, each plot being inclosed by a cypress hedge 2 feet high. Few are so small but they have room for a garden seat, to which is generally chained a small watering-pot to help the flowers along. There is no crowding of the tombstones. You may easily be quite secluded in your grief, though a hundred other mourners are within hail. It is a beautiful place, which the stranger is from the first advised by everyone to visit—and with justice.

(To be continued.)

[2] THE LANCET, August 14th, 1909, p. 494.

THE LONDON COUNTY COUNCIL AND MEDICAL AFFAIRS.

Medical Treatment of School Children.

AT its last meeting before the summer recess the London County Council approved a scheme for the treatment, by means of X rays, of 50 ringworm cases a year at the Royal Free Hospital, Gray's Inn-road. The Education Committee stated that under existing arrangements children attending schools in West Islington and the adjoining districts were referred to the Charing Cross Hospital for treatment. The Royal Free Hospital would be more convenient, and full advantage could be taken by children from other parts of London of the accommodation set at liberty at Charing Cross Hospital. The arrangements made with other hospitals provided that 100 cases a year should be guaranteed for each clinical assistant working one half day a week, at a cost of £85. The committee did not feel able to guarantee a sufficient number of cases for treatment at the Royal Free Hospital to justify the engagement of a clinical assistant for one half-day a week. The governing body was prepared to undertake 50 ringworm cases in 12 months at a charge to the Council of 17*s.* a case, including the services of a medical practitioner.

Schoolkeepers and Vaccination Exemption.

At a meeting of the Education Committee held subsequent to the adjournment of the Council a number of matters of medical interest were considered. Some discussion took place with reference to the case of a school caretaker who had made a statutory declaration of conscientious objection to the vaccination of his child. Ultimately the committee approved a recommendation that—

> In view of the fact that, should an outbreak of small-pox occur, children of schoolkeepers and caretakers would be more liable than other children to contract and spread the disease, in all cases where members of a caretaker's household had not been vaccinated, vaccination should be performed within 24 hours, or the schoolkeeper should cease work, and he and all members of his household should vacate the premises, no salary to be paid during absence.

Medical Fees in Accident Cases.

The committee approved a scale of fees to medical men for first attendances upon school children meeting with accidents, fixing 3*s.* 6*d.* as payment for attendance on a child taken to a surgery and 5*s.* for attendance on a child to whom the medical man has been called. The Council holds itself responsible for the payment to medical men of the fee for the first attendance upon scholars who are hurt at school, and it was reported that the amounts claimed under this head had varied considerably hitherto.

Experimental School for Tuberculous Children.

The Council on March 10th, 1910, agreed to an experimental school for tuberculous children being conducted by the Paddington Dispensary for the Prevention of Consumption.[1] It was proposed that the school should deal with children (1) suffering from tuberculosis, (2) predisposed to tuberculosis, and (3) discharged from sanatoriums and being treated at the dispensary. The Board of Education had stated, however, that it was only prepared to give favourable consideration to the scheme provided the school was confined to children having incipient phthisis, or having the disease in a definite form, either of a subacute or chronic nature. The Board added that if the promoters were prepared to modify the scheme in this respect it would consider the matter further. The committee agreed to the modification and decided to communicate with the dispensary.

Sane Epileptic Children.

As reported in THE LANCET of July 9th, 1910, p. 117, the committee decided on July 6th to ask the Home Secretary to receive a deputation urging the need for legislation with regard to the care and control of the feeble-minded, particularly as to making provision for sane epileptic children, of whom it was estimated there were 600 of school age in London, certified by the medical officer (education) to be fit for instruction, but as to two-thirds of them not in attendance at any school. It was reported that the General Purposes Committee of the Council had cancelled the Education Committee's resolution as premature, the Council not having yet considered the report of the Royal Commission.

Treatment of Affections of the Ear and Eye.

A report was received on the scheme under which the Queen Victoria Jubilee Institute of Nurses has undertaken the treatment of children in Hackney, Shoreditch, and Bethnal Green who are suffering from suppurating ears.[2] The children's care subcommittee stated that the results were not very satisfactory mainly owing to the difficulty of obtaining the medical prescriptions necessary before treatment could be commenced. It was desirable to ascertain the most satisfactory method of dealing with children suffering from a complaint which required attention two or three times a day, and whether the Jubilee Institute of Nurses could be of assistance in this direction, and therefore the subcommittee recommended that another experiment should be made in Paddington, where several good dispensaries existed and where there would be less difficulty in obtaining medical prescriptions. An agreement with the Paddington and District Nursing Association for this purpose was approved.

Difficulty had been experienced in connexion with the treatment of children suffering from affections of the eye and ear at the Woolwich medical treatment centre, owing to the failure of parents to carry out the instructions of the medical men as to the insertion of atropine in the eyes and the syringing of the ears. The governing body of the Woolwich Cottage Hospital, which is responsible for the centre, stated that the Woolwich Nursing Association was willing to provide, for £40 a year, a nurse who would assist the parents in carrying out the medical man's instructions. The committee accepted the offer for six months.

[1] THE LANCET, Feb. 19th, 1910, p. 525.

METROPOLITAN HOSPITAL SUNDAY FUND.

THE following is a list of the awards for the year 1910 :—

GENERAL HOSPITALS.

	£	*s.*	*d.*
Charing Cross Hospital	1019	13	4
French Hospital	340	4	2
German Hospital	689	17	6
Great Northern Central Hospital	1140	8	4
Guy's Hospital	1588	18	4
Hampstead General Hospital	473	8	4
Italian Hospital	221	7	6
Kensington General Hospital	113	1	8
King's College Hospital	1543	17	6
London Homœopathic Hospital	411	2	6
London Hospital	5941	13	4
London Temperance Hospital	653	11	8
Metropolitan Hospital	885	10	0
Mildmay Hospital	244	7	6
Miller Hospital and Royal Kent Dispensary	246	5	10
North-West London Hospital	181	2	6
Phillips' Memorial Homœopathic Hospital	47	18	4
Poplar Hospital	616	4	2
Prince of Wales's General Hospital, Tottenham	816	10	0
Royal Free Hospital	1405	17	6
St. George's Hospital	1545	15	10
SS. John and Elizabeth Hospital	99	13	4
St. John's Hospital, Lewisham	207	0	0
St. Mary's Hospital	2267	8	4
St. Thomas's Hospital	543	7	6
Seamen's Hospital Society	1630	2	6
The Battersea General Hospital	78	11	8
The Middlesex Hospital and Convalescent Home	2523	5	10
University College Hospital	2234	16	8
Walthamstow, &c., Hospital	127	9	2
Wandsworth, Bolingbroke Hospital	326	15	10
West Ham Hospital	505	0	10
West London Hospital	1291	16	8
Westminster Hospital	1243	18	4

SPECIAL HOSPITALS.

CHEST HOSPITALS.

City of London Hospital for Diseases of the Chest, Victoria Park	1103	3	10
Hospital for Consumption, Brompton	2911	0	4
Mount Vernon Consumption Hospital, Hampstead	1395	6	8
Royal Hospital for Diseases of the Chest, City-road	547	4	2
Royal National Hospital for Consumption (Ventnor)	239	11	8
Royal National Sanatorium (Bournemouth)	95	16	8

CHILDREN'S HOSPITALS.

Alexandra Hospital for Hip Disease	309	10	10
Banstead Surgical Home	39	5	10
Barnet Home Hospital	45	0	10
Belgrave Hospital for Children	179	4	2
Cheyne Hospital for Incurable Children	77	12	6
East London Hospital for Children, Shadwell	857	14	2

[2] THE LANCET, Feb. 13th, 1909, p. 488.

	£	s.	d.
Evelina Hospital for Sick Children, Southwark	34	10	0
Home for Incurable Children, Hampstead	44	1	8
Home for Sick Children, Sydenham	127	9	2
Hospital for Hip Disease, Sevenoaks	57	10	0
Hospital for Sick Children, Great Ormond-street	1122	4	2
Infants Hospital, Westminster	179	4	2
Kensington, for Children, and Dispensary	98	14	2
Paddington Green Hospital for Children	268	6	8
Queen's Hospital for Children, Hackney-road	851	0	0
Royal Waterloo Hospital for Children and Women	250	2	6
St. Mary's Hospital, Plaistow	254	18	4
St. Monica's Hospital, Brondesbury	76	13	4
Victoria Home, Margate	34	10	0
Victoria Hospital for Children, Chelsea	744	12	6
LYING-IN HOSPITALS.			
British Lying-in Hospital, Endell-street	124	11	8
City of London Lying-in Hospital, City-road	200	0	0
Clapham Maternity Hospital and Dispensary	38	6	8
East-End Mothers' Home	91	0	10
General Lying-in Hospital, Lambeth	143	15	0
Home for Mothers and Babies, Woolwich	62	5	10
Plaistow Maternity Hospital	43	2	6
Queen Charlotte's Lying-in Hospital, Marylebone-road ...	506	0	0
HOSPITALS FOR WOMEN.			
Chelsea Hospital for Women	314	6	8
Grosvenor Hospital for Women and Children, Vincent-square	161	19	2
Hospital for Women, Soho-square	299	19	2
New Hospital for Women, Euston-road	345	0	0
Samaritan Free Hospital, Marylebone-road	386	4	2
OTHER SPECIAL HOSPITALS.			
Cancer Hospital, Brompton	*Nil.*		
Central London Ophthalmic Hospital, Gray's Inn-road ...	158	2	6
Central London Throat and Ear Hospital, Gray's Inn-road...	9	11	8
Female Lock Hospital, Harrow-road	201	5	0
Gordon Hospital for Fistula, Vauxhall Bridge-road	30	13	4
Hospital for Epilepsy, Paralysis, and other Diseases of the Nervous System, Maida Vale	241	10	0
London Fever Hospital, Islington	287	10	0
London Throat Hospital, Great Portland-street	22	0	10
Middlesex Hospital, Cancer Wing...	225	4	2
National Dental Hospital, 149, Great Portland-street ...	52	14	2
National Hospital for the Paralysed and Epileptic	890	5	10
National Hospital for the Diseases of the Heart, Soho-square	157	3	4
Royal Dental Hospital of London	305	14	2
Royal Ear Hospital, Dean-street	40	5	0
Royal Eye Hospital, St. George's-circus	308	11	8
Royal London Ophthalmic Hospital, City-road	978	9	2
Royal National Orthopædic Hospital, Great Portland-street	399	12	6
Royal Sea Bathing Hospital, Margate	172	10	0
Royal Westminster Ophthalmic Hospital, Charing Cross ...	113	1	8
St. John's Hospital for Diseases of the Skin	71	17	6
St. Mark's Hospital for Fistula, City-road	278	17	6
St. Peter's Hospital for Stone, Covent Garden	126	10	0
West End Hospital for Diseases of the Nervous System ...	554	17	6
Western Ophthalmic Hospital, Marylebone-road	112	2	6
CONVALESCENT HOSPITALS.			
All Saints' Convalescent Hospital, Eastbourne...	383	6	8
All Saints' Convalescent Home, St. Leonards-on-Sea ...	23	19	2
Ascot Priory Convalescent Home	81	9	2
Brentwood Convalescent Home for Children	10	10	10
Charing Cross Hospital Convalescent Home, Limpsfield ...	58	9	2
Chelsea Hospital for Women Convalescent Home, St. Leonards	46	0	0
Deptford Medical Mission Convalescent Home, Bexhill ...	17	5	0
Friendly Societies' Convalescent Home, Dover	95	16	8
Hahnemann Convalescent Home, Bournemouth	28	15	0
Hanwell Convalescent Home	12	9	2
Hastings, Fairlight Convalescent Home...	28	15	0
Hendon, Ossulston Home	59	8	4
Herbert Convalescent Home, Bournemouth	19	3	4
Herne Bay Baldwin-Brown Convalescent Home	57	10	0
Homœopathic Hospital Convalescent Home, Eastbourne ...	9	11	8
Hemel Hempstead Convalescent Home	19	3	4
London Hospital Convalescent Home, Tankerton	68	0	10
Mary Wardell Convalescent Home for Scarlet Fever... ...	57	10	0
Metropolitan Convalescent Institution, Walton	383	6	8
Ditto Ditto Broadstairs ...	249	3	4
Ditto Ditto Bexhill	444	13	4
Metropolitan Hospital Home, Cranbrook	9	11	8
Mrs. Gladstone's Convalescent Home, Mitcham	76	13	4
Mrs. Kitto's Convalescent Home, Reigate	47	18	4
Police Seaside Home, Brighton	51	15	0
St. Andrew's Convalescent Home, Clewer	95	16	8
St. Andrew's Convalescent Home, Folkestone	172	10	0
St. John's Home for Convalescent and Crippled Children, Brighton	33	10	10
St. Joseph's Convalescent Home, Bournemouth	43	2	6
St. Leonards-on-Sea Convalescent Home for Poor Children	95	16	8
St. Mary's Convalescent Home, Broadstairs	143	15	0
St. Mary's Convalescent Home, Shortlands	21	1	8
St. Michael's Convalescent Home, Westgate-on-Sea	33	10	10
Seaside Convalescent Hospital, Seaford	115	0	0
COTTAGE HOSPITALS.			
Acton Cottage Hospital	96	15	10
Beckenham Cottage Hospital	76	13	4
Blackheath and Charlton Cottage Hospital	76	13	4
Bromley, Kent, Cottage Hospital	125	10	10
Bushey Heath Cottage Hospital	39	5	10
Canning Town Cottage Hospital	90	1	8
Chislehurst, Sidcup, and Cray Valley Cottage Hospital ...	69	0	0
Coldash Cottage Hospital	21	1	8
Ealing	82	8	4
East Ham Cottage Hospital	68	0	10
Eltham Cottage Hospital	71	17	6
Enfield Cottage Hospital	76	13	4
Epsom and Ewell Cottage Hospital	43	2	6
Hounslow Cottage Hospital...	43	2	6
Livingstone Dartford Cottage Hospital	91	0	10
Kingston, Victoria Hospital	83	7	6
Mildmay Cottage Hospital	48	17	6
Reigate and Redhill Cottage Hospital	109	5	0
Sidcup Cottage Hospital	33	10	10
Tilbury (Passmore Edwards) Cottage Hospital...	47	18	4
Willesden Cottage Hospital	105	8	4
Wimbledon Cottage Hospital	61	6	8
Wimbledon (South) Cottage Hospital	50	15	10
Wood Green Cottage Hospital	72	16	8
INSTITUTIONS.			
All Saints', Highgate	29	14	2
Firs Home, Bournemouth	36	8	4
Free Home for Dying, Clapham	112	2	6
Friedenheim Hospital for the Dying	299	0	0
Hospital for Invalid Gentlewomen, Harley-street	92	19	2
Invalid Asylum, Stoke Newington	31	12	6
Royal Mineral Water Hospital, Bath	57	10	0
Santa Claus House, Highgate	59	8	4
St. Catherine's Home, Ventnor	19	3	4
St. Luke's House, Pembridge-square	154	5	10
St. Saviour's Hospital and Nursing Home	95	16	8
Winifred House, Holloway	59	8	4
DISPENSARIES.			
Battersea Provident Dispensary	194	10	10
Billingsgate Dispensary	55	11	8
Blackfriars Provident Dispensary	18	4	2
Bloomsbury Provident Dispensary	15	6	8
Brixton, &c., Dispensary	46	19	2
Brompton Provident Dispensary	20	2	6
Buxton-street Dispensary	15	6	8
Camberwell Provident Dispensary	75	14	2
Camden Town Provident Dispensary	14	7	6
Chelsea, Brompton, and Belgrave Dispensary	38	6	8
Chelsea Provident Dispensary	13	8	4
Child's Hill Provident Dispensary...	12	9	2
City Dispensary	57	10	0
Clapham General and Provident Dispensary	24	18	4
Deptford Medical Mission	23	0	0
Eastern Dispensary	43	2	6
East Dulwich Provident Dispensary	53	13	4
Farringdon General Dispensary	46	0	0
Finsbury Dispensary	46	19	2
Forest Hill Provident Dispensary...	35	9	2
Greenwich Provident Dispensary	30	13	4
Hackney Provident Dispensary	21	1	8
Hampstead Provident Dispensary...	46	19	2
Holloway and North Islington Dispensary	9	11	8
Islington Dispensary	53	13	4
Islington Medical Mission	50	15	10
Kennington and Vauxhall Provident Dispensary	13	8	4
Kensal Town Provident Dispensary	11	10	0
Kentish Town Medical Mission	21	1	8
Kilburn, Maida Vale, and St. John's Wood Dispensary ...	35	9	2
Kilburn Provident Medical Institution	47	18	4
London Dispensary, Spitalfields	15	6	8
London Medical Mission, Endell-street	104	9	2
Margaret-street, for Consumption...	31	12	6
Metropolitan Dispensary	60	7	6
Mildmay Medical Mission Dispensary	12	9	2
Notting Hill Provident Dispensary	18	4	2
Paddington Provident Dispensary...	34	10	0
Public Dispensary, Drury-lane, W.C.	34	10	0
Queen Adelaide's Dispensary	24	18	4
Royal General Dispensary	28	15	0
Royal Pimlico Provident Dispensary	39	5	10
Royal South London Dispensary	44	1	8
St. George's, Hanover-square, Dispensary	31	12	6
St. John's Wood Provident Dispensary	47	18	4
St. Marylebone General Dispensary	47	18	4
St. Pancras and Northern Dispensary	35	9	2
South Lambeth, Stockwell, and N. Brixton Dispensary ...	31	12	6
Stamford-hill, Stoke Newington Dispensary	47	18	4
Tower Hamlets Dispensary	43	2	6
Walworth Provident Dispensary	13	8	4
Wandsworth Common Provident Dispensary	12	9	2
Westbourne Provident Dispensary	18	4	2
Western Dispensary	76	13	4
Western General Dispensary	91	0	10
West Ham Provident Dispensary	11	10	0
Westminster General Dispensary	46	0	0
Whitechapel Provident Dispensary	33	10	10
Woolwich Provident Dispensary	40	5	0
NURSING ASSOCIATIONS.			
Belvedere, Abbey Wood	7	11	6
Brixton	30	6	0
Central St. Pancras	22	14	6
Chelsea and Pimlico	22	14	6
East London	189	7	6
Hackney	22	14	6
Hammersmith	53	0	6
Hampstead	22	14	6
Isleworth...	15	3	0
Kensington	53	0	6
Kilburn	7	11	6
Kingston	30	6	0
London District...	310	11	6
Metropolitan (Bloomsbury)	22	14	6

	£	s.	d.
North London	60	12	0
Paddington and Marylebone	37	17	6
Peckham	15	3	6
Plaistow	136	7	0
,, (Maternity)	174	4	6
Rotherhithe	15	3	0
St. Olave's (Bermondsey)	30	6	0
Shoreditch	45	9	6
Sick Room Helps Society	22	14	0
Silvertown	22	14	0
South London (Battersea)	53	0	0
Southwark	37	17	6
South Wimbledon	45	9	6
Tottenham	7	11	6
Westminster	30	6	0
Woolwich	30	6	0

ASYLUM REPORTS.

Fife and Kinross District Board of Lunacy (*Annual Report for the Year ending July 31st, 1909*).—The average daily number resident at the Fife and Kinross District Asylum for the period reported upon was 611, of whom 292 were males and 319 females. There were admitted 159 patients, this being the highest number in the history of the asylum. The figures show that the increase is due to a remarkable rise in the number of male admissions. Ninety-three persons were discharged, the number of those discharged recovered being 54, or 33·9 per cent. of the admissions. It appears that the change in the character of the cases now placed under care has produced, as one of its results, a marked lowering of the recovery rates. The deaths numbered 38, this being 6·2 per cent. of the average daily number resident. More than half of the persons who died were over 60 years of age. The report has this year been delayed in publication owing to the unfortunate illness of Dr. A. R. Turnbull, the medical superintendent.

County and City of Worcester Lunatic Asylum, Powick (*Annual Report for the Year 1909*).—At this asylum the average number resident was 935. Admissions numbered 109. Fifty-three patients were discharged during the year, and of this number 34 were discharged recovered. Deaths numbered 77, being a percentage of 8·2 on the average number resident. Pulmonary tuberculosis accounted for 13 per cent. of the deaths, and it may be noted that the Commissioners in Lunacy reported with regret that they saw phthisical cases being treated in bed in the associated dormitories. They express a hope that means may be found to provide for the treatment of such patients in the open air or in some form of segregation. It is satisfactory to notice that post-mortem examinations were made in 73 out of the 77 deaths.

Eastern Counties Asylum for Idiots, Imbeciles, and the Feeble-minded, Colchester (*Annual Report for the Year 1909*).—At this asylum the average daily number in residence was 336, as against 326 in the previous year. Twenty-five persons were admitted. The total number of deaths was eight, which is a considerable reduction upon former years. For the last four years the death-rate per 1000 has been 18·9, a fact of which the medical officer, Dr. F. Douglas Turner, writes with pride. The rate is certainly a striking one when the poor vitality and resisting power of this class of patients is remembered. No deaths from any form of tuberculosis occurred during the year, and during the last four years the total number of deaths from this cause has only been four, the rate being one-fifteenth of what it was before 1905.

Lunatic Asylum for the County Borough of Leicester, West Humberstone (*Annual Report for the Year 1909*).—At this asylum the average number daily resident was 716. The admissions during the year numbered 161. The discharges numbered 73 and the percentage of recoveries on the admissions, excluding patients transferred from other asylums, was 38·38. The deaths numbered 85, the rate estimated upon the average number resident being 11·87. The death-rate has been higher than in any year since 1900, and amongst those who died were a large number of old chronic cases. Fourteen deaths occurred in patients over 70 years of age. The Commissioners observe with regret that many patients suffering from phthisis undergo treatment in the general wards, and they recommend that verandahs be provided for the open-air treatment of such cases.

CENTRAL MIDWIVES BOARD.

SPECIAL meetings of the Central Midwives Board were held at Caxton House, Westminster, on July 19th, 20th, and 21st, Sir FRANCIS H. CHAMPNEYS being in the chair.

The following midwives were struck off the roll: Lottie Bloomer, that being in attendance as a midwife at a confinement, the patient suffering from severe rigor and abdominal pain, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might be immediately forwarded to a medical practitioner, as required by Rule E. 19 (4). Ann Briggs, that being in attendance as a midwife at a confinement, the perineum being seriously ruptured, she did not act as required by Rules E. 18 and 19 in regard to sending for a doctor. Ellen Briggs, that being in attendance as a midwife at a confinement, the child suffering from inflammation of the eyes, she did not act as required by Rules E. 18 and 19 in regard to sending for a doctor. Sarah Collings, that being in attendance as a midwife at a confinement, the patient suffering from post-partum hæmorrhage, she did not act as required by Rules E. 18 and 19 in regard to sending for a doctor. Mary Denver, that having, with intent to evade supervision and inspection, notified the local supervising authority in 1907 of her intention to cease practice as a midwife, and to practise in future only under the supervision of a registered medical practitioner, she had nevertheless since practised as a midwife, and in cases where a doctor had been only colourably engaged, without notifying the local supervising authority. Mary Jane Evans, that being in attendance as a midwife at a confinement, the patient suffering from severe rigor and vomiting, she did not act as required by Rules E. 18 and 19 in regard to sending for a doctor. Sarah Hook, that she was uncleanly in her person, clothing, and house. Sarah Jarvis, that being in attendance as a midwife at a confinement, the patient suffering from constant diarrhœa and from pain in the breasts during her attendance, she did not act as required by Rules E. 18 and 19 in regard to sending for a doctor. Susannah Longney, that being in attendance as a midwife at a confinement she was under the influence of drink, and incapable of performing her duty as a midwife. Mary Staveley, that notwithstanding repeated warnings she persistently neglected to provide herself with the bag, appliances, and antiseptics required by Rule E. 2. Jane Taylor, that being in attendance as a midwife at confinements she did not take the temperature of her patients, being unable to use a clinical thermometer, having neglected to learn how to do so in spite of previous warnings. Isabella Tinker, that having been engaged to attend a woman in an approaching confinement, and having been sent for on March 21st, 1910, when she ascertained that the presentation was abnormal, she did not act as required by Rules E. 18 and 19 in regard to sending for a doctor. Rachel Yates, that being in attendance as a midwife at a confinement, the patient suffering from persistently offensive lochia with high temperature, she did not act as required by Rules E. 18 and 19 in regard to sending for a doctor. Charlotte Bates, that being in attendance as a midwife at a confinement, the child suffering from inflammation of the eyes, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the husband or the nearest relative or friend present the form of sending for medical help properly filled up and signed by her in order that this might be immediately forwarded to a medical practitioner, as required by Rule E. 19 (5). Ada Chivers, that she persistently neglected, after being duly warned, to provide herself with the equipment, appliances, and antiseptics required by Rule E. 2. Emma Frost, that being in attendance as a midwife at a confinement, the patient being ill suffering from headache, abdominal pains, and vomiting, she did not act as required by Rules E. 18 and 19 in regard to sending for a doctor.

Margaret Aldred, Louisa Thomas, Elizabeth Jane Haines, Sarah Harvey, and Ellen Potter were censured after charges alleged against them had been considered.

Mary Ann Byfield, Christian Shaw, Mary Warburton, and Annie Jane Hewitt were cautioned after charges alleged against them had been considered.

A meeting was held at Caxton House, Westminster, on July 28th, Sir FRANCIS CHAMPNEYS being in the chair.

A letter was considered from the Clerk of the Council, transmitting a copy of a letter addressed to him by the Lord Mayor of Manchester with a copy of a resolution passed by the city council suggesting the omission of the words "conducted for profit" in Clause 15 of the Midwives Bill, 1910, as introduced into the House of Lords by Lord Wolverhampton. It was agreed that the reply be that the Board observes that the suggested amendment has been carried out in the Midwives (No. 2) Bill, 1910.

A letter was considered from the medical officer of health of Leicester as to the "covering" by a certain certified midwife of a woman whose name was removed from the Roll. The Board decided that inquiries be made as to whether the woman has in fact ever delivered a patient by herself since her name was removed from the Roll, and whether she has ever visited a patient without being accompanied by the other midwife.

A letter was considered from the General Secretary of the Medical Defence Union calling attention to an advertisement and the issue of circulars by a certified midwife. The Board decided that the reply be that the midwife did not appear to have infringed any of the rules of the Board.

A letter was considered from the medical officer of health of Manchester calling attention to a number of advertisements by certified midwives in Manchester papers. The Board decided that the medical officer of health of Manchester be referred to Rule E. 26 as the governing rule in relation to the proper description of a midwife.

A letter was considered from the clerk of the London County Council as to a charge of misconduct brought by a certified midwife against another certified midwife formerly in her employment. The Board decided that the local supervising authority for the county of London be requested to trace the midwife if possible, and, if she can be communicated with, to consider whether a *primâ facie* case of misconduct has been established against her.

A letter was considered from the clerk of the Hants County Council as to the construction of Rule E. 5. It was agreed that the Board approves the secretary's reply, stating that the clear intention of the rule is that the midwife should not attend another case until the local supervising authority are satisfied that she herself, her instruments, and other appliances have been properly disinfected.

A letter was considered from a certified midwife inquiring as to the necessity of notification of intention to practise where, though a doctor is always engaged for a case, she herself habitually delivers the patient. The Board decided that the midwife be informed that, inasmuch as her question involves points of law, the Board did not consider it its province to advise.

A letter was considered from the honorary secretary of the Derby County Nursing Association, complaining of the action of the local supervising authority in interfering with the work of the association. The Board decided that the Derby County Nursing Association be informed that the Board has no power to control the actions of the officers of the local supervising authorities, nor has it any jurisdiction in the matter.

THE ROMFORD GARDEN SUBURB.—The public inauguration on July 28th of the new garden suburb by Mr. John Burns, President of the Local Government Board, marks one more step forward of the garden city movement. The new suburb is within easy reach of London, the station at Squirell's Heath is five minutes' walk from it, and Romford Station only a mile. The streets are planned out to make Gidea Hall, a fine early Georgian house, the central building of the suburb, and to use the trees of the park to form avenues and add attractiveness to the gardens. On one side of the estate is the Romford public park and on the other the golf course, open surroundings thus being assured, while every house is to have ample garden space and pleasant views. No kind of overcrowding or speculative jerry building is to be allowed. Such a suburb cannot fail to be more healthy and more generally conducive to well-being than the usual ill-regulated overgrowth of streets and houses with which the surroundings of London abound. For not alone will the sanitary supervision be easier, but, as pointed out by Dr. John Robertson in a paper on Town Planning read at the meeting of the British Medical Association, amenity has a powerful indirect effect upon the public health.

Public Health.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

City of Glasgow.—The urgent need for a quinquennial census, as well as the danger of relying upon estimates of populations based upon the Registrar-General's methods, is abundantly manifest from the current report of Dr. A. K. Chalmers, the medical officer of health of Glasgow. The Registrar-General's estimate of population for 1909 is 872,021, that of the medical officer of health only 800,410. In other words, the first estimate shows an excess of over 70,000 as compared with the second estimate, which is based upon the actual number of inhabited houses, such number of houses showing a decrease of 547 as compared with those of 1908. On a basis of inhabited houses alone there was a decrease in the population since 1908 of 2501, but there has been an increase in institutional population which reduces the actual decrease to 840, as compared with an estimated increase by the Registrar-General of 12,306. In these circumstances there is obviously need for caution in accepting the several rates until the next census shall have revealed the actual population. There has been a decrease in the marriage-rate during the last 39 years of 27 per cent. based upon the population at all ages, but of 29 per cent. if the rate be calculated upon the unmarried and widowed female population between 15 and 45 years of age. Similarly, the birth-rate when calculated over the whole population shows a fall of 35 per cent. below the rate for 1870–72, whereas when calculated on the number of women of child-bearing ages the rate is 41 per cent. The death-rate for 1909 on the Registrar-General's estimate was 17·5 per 1000, a rate which was exceeded by Dundee in Scotland and Liverpool and Manchester in England. It may be here pointed out that the population of Glasgow, however estimated, exceeds that of Liverpool or Manchester, but if all the extension asked for by Birmingham is granted by Parliament, Birmingham is likely to be the largest extra-metropolitan city in the United Kingdom. It will then remain for Glasgow, Liverpool, or Manchester to take the next move as regards borough extension, and it would appear to be competent for any of the three to force the pace in the matter of population by a liberal extension of its limits. Of the 23 503 births notified in 1909, there were 46·9 per cent. attended medically, while 53·1 had no medical attendance, the percentage medically attended varying markedly in the several wards, the maximum being 90·4 per cent. and the minimum 22·2 per cent. Dr. Chalmers observes that until the advantages of the Midwives Act are extended to Scotland it will not be possible to distinguish between the births attended by certified and uncertified women. Some instructive curves are furnished showing the average weight of children fed on breast milk only and on breast and artificial foods combined, as well as the relation obtaining between children fed on artificial foods only and depôt milk alone. These curves indicate that any diet into which breast milk enters is better than any form of food which is wholly artificial, but they show also that a child whose food has been mainly artificial from the beginning does not suffer at the period of weaning from the disturbances which beset the breast-fed child. As regards the depôt-fed child, the curves appear to suggest that although during the first three months its condition compares favourably with that of other artificially fed children, its weight is afterwards uniformly lower, a fact which appears to point to the conclusion that the depôt milk is not a better substitute for breast milk than certain artificial foods which have here been employed. Dr. Chalmers gives the figures for vaccination exemption certificates in Glasgow, and he shows that although it is asserted in England that the withdrawal of compulsory vaccination resulted in the extension of vaccination, the contrary has been the case in Scotland since the exemption facilities have been extended across the Tweed, and in 1908 9·2 per cent. of the births were exempted by statutory declaration. As Dr. Chalmers observes, Glasgow is preparing a population "amongst which small-pox will spread in a manner of which this present generation has had no experience." Probably a similar statement, but in more pronounced fashion, may be made with respect to England, as from the reports of many medical officers of health it is clear that exemptions are

increasing at a rapid pace. There were 26 cases of typhus fever in Glasgow in 1909, the fatality-rate being 11·5 per cent. The after-history of 272 tuberculous patients discharged from Bellefield Sanatorium prior to midsummer, 1910, is of interest, and certain of the figures may be quoted:—

Of 51 discharged under 3 months, 11 are at work and 17 are dead.							
41	,,	6	,,	4	,,	18	,,
65	,,	12	,,	14	,,	24	,,
46	,,	2	years,	10	,,	18	,,
33	,,	3	,,	9	,,	9	,,
28	,,	4	,,	10	,,	5	,,

The differences in each case between the totals discharged are made up under the headings "Not at work," "Gone to country," "Abroad," and "No information." The incidence of puerperal fever in relation to the attendance at birth was carefully studied during 1909, with the result that 3·21 per 1000 was found amongst cases attended by doctors, as against 5·7 per 1000 amongst those attended by midwives. But Dr. Chalmers very rightly observes that caution in drawing inferences from these figures is necessary, since the midwives more frequently practise amongst the poor and in smaller houses than do the doctors. The advantage of hospital treatment of enteric fever cases as compared with home treatment is emphasised by the fact that in 1909 the fatality-rate of the former was 15 per cent. and of the latter 55 per cent., and a table is furnished in the report before us showing that since the year 1901 the hospital fatality-rate has always been below that of the home fatality-rate.

City of Worcester.—The medical officer of health of this city, Dr. Mabyn Read, has evidently some misgivings as to the purity of the water-supply, which is presumably derived from the river Severn. The filtered water occasionally contains too many bacilli coli, and it is evidently considered desirable to provide increased facilities for the storage of this same river water. It must certainly be said that storage of river water is at the present day one of the first essentials of purification, as such storage for a few days serves to bring about a large reduction in the total number of micro-organisms and the destruction of pathogenic bacteria; in fact, if adequate storage be provided the risks attending filtration are very materially reduced, as has been shown by Dr. A. C. Houston in connexion with the waters of the Thames. As the result of the voluntary notification of pulmonary tuberculosis 41 cases were reported during 1909, and under the new regulations the district medical officers notified 16 cases. Of these latter, all except 2 were admitted to the workhouse infirmary, and 9 of them died before the end of the year, a fact which shows, Dr. Read thinks, that the patients sought the assistance of the Poor-law only at the last extremity.

City of London.—Dr. W. Collingridge, in presenting his annual report for 1909 to the corporation, gives expression to the opinion that "matters connected with the public health will be neglected or treated as of minor importance in the councils of the nation until the election of a Minister of Public Health is advocated by all parties," and the public health committee appears to have endorsed this sentiment. The court, however, decided upon the report coming before it to express no opinion with regard to the above suggestion. Whatever may be the general opinion held in the public health service with respect to this important but very difficult subject, everyone will agree with Dr. Collingridge in his remarks as to the manner in which sanitary administrators are hampered in their work by the prevalence of legislation by reference, and that our sanitary laws generally require codification. All teachers of sanitary law experience very great difficulty in teaching students on account of the maze of cross-references which is rendered necessary by the present accumulation of separate Acts amending previous statutes, and these criticisms have special application to our statutes relating both to housing and to food. There will also be general approval of Dr. Collingridge's advocacy of a Court of Reference which should have power to fix standards of purity for foods and drugs. The steady diminution of the night population of the City from 112,063 in 1861 to 26,923 in 1901 is as interesting a fact as is the increase of its day population from 170,133 in 1866 to 301,384 in 1891, and there will be general regret that there was no day census in 1901. The death-rate of the City for 1909 is estimated at 18 per 1000 and the infantile mortality at 106 per 1000 births. Examination of the milk-supply entering the City was made during March and April, 1909, and 32 samples were examined bacteriologically. Of these, 43·7 per cent. were "fairly clean and pure," 43·8 per cent. unclean, and 12·5 per cent. tuberculous. As regards the latter, the percentage was the largest found since the commencement of the inquiry, but it must be remembered that the number of samples examined was small. During November and December a further series of samples—42 in all—were collected from churns at Liverpool-street Station and examined by Dr. Klein, and of these only 4·7 per cent. were found to be tuberculous. The number of cremations carried out at the Corporation cemetery at Ilford in 1909 was 24, as compared with 19 in 1908, the total number of cremations in the United Kingdom having been 855, as against 795 in 1908. With the view of popularising cremation the Corporation has reduced its inclusive charges to £2 15*s.* 6*d.*, a fee which includes all attendance after the body is placed on the catafalque table by the undertaker, the provision of a plain urn for the remains, and its storage for three months. Cremation in this country as a whole makes very slow progress, although there are now in all 13 crematoriums in different parts of the country. While discussing this subject of the disposal of the dead reference may be made to some experiments carried out in the City mortuary for the preservation of bodies. Refrigeration, which is practised at the Paris Morgue, was not adopted because of the space which the necessary apparatus would occupy, the cost of working, and the fact that decomposition commences directly the body is removed from the apparatus. An arrangement in operation at Brussels was therefore visited and inspected. This apparatus, which was invented by Dr. G. De Rechter, consists of an air-tight case communicating with a smaller chamber in which formalin vapour is generated, the vapour being circulated by means of an electric fan. The body can be viewed through glass windows provided for the purpose, and provision is made for illuminating the interior of the chamber by electricity. The formalin vapour is neutralised by ammonia before opening the chamber in order to avoid inconvenience from the fumes. This apparatus was procured on the advice of Dr. Collingridge and was used on March 16th upon the body of an unknown man who had been drowned on March 10th and who had been the subject of a necropsy on March 12th. At the end of seven weeks the body, being in a good state of preservation, was removed to the mortuary, where it remained in good condition without further treatment until June 16th. As bodies are usually kept one month for identification Dr. Collingridge regards this apparatus as fulfilling all requirements.

Borough of Batley.—In his discussion of the subject of infantile mortality in Batley during 1909 Dr. J. M. Clements frankly accepts the fact that the diminution in the rate for the year in question was due very largely to the cool and wet summer, which limited or prevented the annual outbreak of diarrhœa, but he thinks that the preventive measures adopted also exercised a powerful influence. The rate for 1909 was only 117 per 1000 births, which represents an enormous reduction upon the average of 185 per 1000 for the preceding five years. Dr. Clements observes that on reading over the family histories of 86 infants who died in 1909 he was struck by the large number of children that die in infancy in certain families and the marked contribution which some mothers make to the infantile mortality-rate. He furnishes a number of illustrative cases, of which one or two examples may be quoted. No. 1: 8 children; 4 dead, 3 under 7 months of age, 1 stillborn. No. 19: 4 children; all dead, 3 under 5 months old, 1 lived a few hours only. No. 27: 11 children; 6 dead, 5 under 8 months old. No. 39: 13 children; 10 dead, 8 under 1 year old. No. 68: 5 children; all dead under 6 months of age. On the other hand, he could, he says, cite numerous examples of mothers who have reared large families and who live under precisely similar circumstances, and who possess about the same weekly wage upon which to bring up their young. He thinks that the determining factor is the mother herself. Some women are "born mothers" whom nature has endowed with the instincts of motherhood; others are not naturally so gifted and they have received no education upon the subject. Dr. E. W. Hope of Liverpool has drawn attention to precisely the same disparities in this respect of child rearing even in adjacent houses in the same street and all the circumstances similar save that of motherhood. It would enhance the value of similar comparisons in future if the health and physical condition of the mother were given in each instance, and

possibly also the midwife identified, as all these points have some bearing upon the question. Dr. Clements reports that a very successful baby-show was held during 1909, at which some 500 babies were shown. This exhibition was regarded as being of great educational value. Efforts are apparently being made to establish a *crèche* at which mothers could obtain advice at fixed times.

Borough of Bootle.—The estimated population of this borough is 71,500, a fact which shows how substantially the city of Liverpool would gain numerically by such an extension of its limits as would embrace Bootle, and it is interesting to reflect whether, in view of the efforts of Birmingham to become the largest city in the United Kingdom outside the metropolis, the corporation of Liverpool will be stimulated to make another attempt to maintain its premier position. An inquiry was carried on during 1908 and 1909 as to the relation between the industrial employment of women and infantile mortality, and the statistics so far obtained do not support the previous experience of some manufacturing towns that the mortality amongst the infants of mothers employed in factories is substantially greater than that amongst women solely engaged in household duties. So far as the Bootle figures go, the infant mortality rate amongst the children of industrially employed women was 136 per 1000 births, as against 191 per 1000 where mothers were engaged in household duties. The type of scarlet fever prevailing in Bootle in 1909 was a very mild one, and amongst the 186 patients above the age of 7 years there was no death. The enteric fever death-rate has shown a marked fall for many years past, and Mr. W. Daley, the medical officer of health, is inclined to ascribe the reduction largely to the substitution of a water-carriage system of excrement disposal for the conservancy system which formerly obtained.

Metropolitan Borough of Woolwich.—Out of 3137 births in this borough during 1909 there were no less than 535 concerning whom vaccination exemptions were procured, as compared with 109, 170, and 257 in the three preceding years, a fact which leads Dr. Sidney Davies to predict another epidemic of small-pox "before very long owing to the increase of unprotected children." But it should be held in mind that prophecies of this nature have not yet been fulfilled in the practically unprotected population of Leicester. Probably other factors than the absence of vaccination—an absolute protection against small-pox for many years—are required to produce an epidemic of small-pox. Since the year 1904 the council of this borough has made arrangements with the Maitland Cottage Sanatorium at Peppard for the maintenance of seven beds, the charge being 28*s.* per week per bed when occupied and 20*s.* when unoccupied, and in reference to the Woolwich cases treated in that institution Dr. Davies furnishes a very instructive table in the form recommended in the Local Government Board report relative to the after-results of the treatment during the last seven years:—

Of 11 cases discharged in 1904,	4	were at work or seeking work in [January, 1910.							
" 16	"	"	1905,	2	"	"	"	"	"
" 29	"	"	1906,	13	"	"	"	"	"
" 37	"	"	1907,	15	"	"	"	"	"
" 30	"	"	1908,	14	"	"	"	"	"

The remainder in each case were either dead (the majority), not well enough to work, or lost sight of; but of these latter most are believed to be well and at work. Dr. Davies then goes on to make some very instructive comments upon the economic aspect of sanatorium treatment, and in view of the interest being manifested in the subject at the present moment they are well worthy of serious attention. He gives reasons for concluding that at least one-third of the patients are well and at work three years after leaving the sanatorium, and they may therefore, he thinks, be regarded as permanently cured. The other two-thirds, who are now either dead, unwell, or lost sight of, are known to have performed on an average nine months' work each subsequent to leaving the sanatorium, and for this reason they may, he considers, have justified the cost of sanatorium treatment (£14) upon themselves. Assuming, therefore, that the above proportions hold good for the patients treated each year, there are two-thirds of the patients sufficiently restored to health to work for nine months, and consequently, he says, earning four times the amount that their treatment cost. He then turns to the economic aspect of what he claims to be the restoration to health of the remaining third—i.e., 12 patients every year—and he infers that had they been left untreated most of them would have died within two or three years, many (perhaps a half) after spending an average of six months in the infirmary. He estimates that two-thirds would be adult men, and one-third would have on an average a wife and three children each who would in all probability become chargeable to the guardians when the wage-earner went to the infirmary. A rough estimate of the cost to the rates is given as follows:—

Cost of six months' infirmary treatment of six men	£156
Out- or in-door relief of four wives at 1*s.* a week for ten years	104
Out- or in-door relief for 12 children at 10*s.* a week for five years	1560
	£1820

His conclusion is that an expenditure of £500 not only makes 24 men wage-earners for nine months and postpones and diminishes their chargeableness to the guardians in that time, but it also makes eight men permanent wage-earners and saves an expense from the rates within the next ten years of £1820. This is, on the whole, a very moderate statement and it was well worth making. But it must, we are afraid, be admitted that the critics would quarrel with some of the data and inferences. In the first place, evidence would be asked for in support of the conclusion that the majority of the two-thirds who worked for nine months after leaving the sanatorium would not have done approximately the same had they never entered it. The data furnished by Dr. Davies do not enable a judgment to be formed, but we should not be surprised to hear that many of these patients were capable of work when they entered the institution. In the same fashion information would be asked for in support of the opinion that if the remaining third—those who are regarded as having been restored to health—had been left untreated most of them would have died within two or three years instead of being well and at work at the end of three years, but here again the data do not suffice for an answer. All depends upon the nature of the cases on admission. Possibly they were very promising cases selected from a large number of applicants, and if so the expectation of continued life and usefulness was considerable. Those who a few years ago would have been admitted to a sanatorium are now regarded as too advanced, and as the result the standard for sanatorium treatment is steadily being raised. With respect to the relief afforded to the relatives, ought not something to be charged for their support during the stay of the patients in the sanatorium—i.e., ought not six months' keep for wife and children to be charged to the debit account in certain instances? But we hope that Dr. Davies will continue these investigations and discussions, as he sets out his data in the only way in which their value can be properly appraised, and he himself is clearly anxious to arrive at the real truth whatever it may be.

Borough of Bethnal Green.—The estimated population of this borough for 1909 was 131,316; the census population of 1901, 129,680. The birth-rate was 31·47 per 1000, the marriage-rate 13·9 per 1000, and the infantile mortality-rate 129·25 per 1000 births. The infantile death-rate from premature birth and congenital defects was 29·2, from diarrhœal diseases 26·9, from respiratory diseases 21·1, from wasting diseases 12·6, and from the common infectious diseases 8·5 per 1000 births in each instance. Dr. G. Paddock Bate regards 22·5 per cent. of the total infantile mortality as due to antenatal causes, and he thinks that it is not the employment in factories of prospective mothers which is responsible for the birth of premature or deformed children so much as unsuitable home-work of various kinds. There were 297 cases notified as pulmonary tuberculosis in 1909—i.e., 241 from the local infirmary and workhouse, 44 from their homes, and 12 from other institutions. There were 258 cases under treatment in the infirmary during the year. Of the infirmary cases 43 per cent. left the infirmary once or more than once; 41 were admitted on two or more occasions. At the time of admission 44 per cent. of the cases were too advanced for useful treatment, and of 112 cases which left the infirmary 80 per cent. had derived improvement, 14 had considerably improved, 12 per cent. showed no change, and 8 per cent. were worse. Dr. E. Taunton, the deputy medical officer of health, who writes this section of the report, points to the fact that of the large number of patients who on admission to the infirmary were beyond all hope of permanent improvement, 45 per cent. developed a restless tendency and left the

institution. This restless tendency, so common to phthisical patients, is liable, he thinks, to considerably diminish the benefit derivable from treatment in sanatoriums, hospitals, and infirmaries, although the educational value of these institutions is great.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 7014 births and 3476 deaths were registered during the week ending August 6th. The annual rate of mortality in these towns, which had been equal to 11·1 and 11·3 per 1000 in the two preceding weeks, declined to 10·7 in the week under notice, and was lower than in any previous week of this year. During the first five weeks of the current quarter the annual death-rate in these towns averaged only 11·1 per 1000, and in London during the same period the death-rate, calculated on the probably over-estimated population, did not exceed 10·5 per 1000. The lowest reported annual rates of mortality during last week in these 77 towns were 4·3 in Handsworth, 4·7 in Leyton, 5·5 in Walthamstow, and 5·8 in Hornsey, all being suburban districts; the rates in the rest of the 77 towns ranged upwards to 15·9 in Sunderland, 16·2 in Brighton, 16·3 in Dewsbury, and 17·0 in Merthyr Tydfil. In London the reported death-rate last week did not exceed 10·2 per 1000. The 3476 deaths registered last week in the 77 towns showed a decrease of 189 from the low number in the previous week, and included 347 which were referred to the principal epidemic diseases, against 361 and 353 in the two preceding weeks; of these 347 deaths, 115 resulted from diarrhœa, 87 from measles, 78 from whooping-cough, 33 from diphtheria, 19 from scarlet fever, and 15 from enteric fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was equal to 1·1 per 1000, and corresponded with the rate in each of the two preceding weeks. No death from any of these epidemic diseases was registered last week in Brighton, Plymouth, Norwich, Northampton, York, or in nine other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·6 in Preston, 2·8 in Liverpool, 3·4 in Burnley, and 4·9 in Barrow-in-Furness. The deaths attributed to diarrhœa in the 77 towns, which had been 63, 103, and 120 in the three preceding weeks, declined again last week to 115; the highest annual rates from this cause during the week were 1·5 in Middlesbrough, 1·8 in Aston, and 1·9 in Burnley. The 87 fatal cases of measles exceeded by 2 the low number in the previous week; this disease showed last week the greatest fatality in Oldham and in Barrow-in-Furness. The deaths from whooping-cough, which had been 106 and 87 in the two previous weeks, further declined last week to 78, and were fewer than in any previous week of this year; they caused the highest rates in Manchester and Burnley. The 33 deaths from diphtheria showed a further slight increase upon recent weekly numbers, and included 11 in London and its suburban districts, 4 in Salford, and 2 each in Stoke-on-Trent, Birmingham, and Hull. The 19 fatal cases of scarlet fever included 5 in London and 4 in Birmingham and its suburban districts. Of the 15 deaths referred to enteric fever, showing a slight further increase upon the low numbers in recent weeks, 2 occurred in Sheffield. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had increased in the six preceding weeks from 1353 to 1563, had declined again to 1523 on Saturday last; 165 new cases of this disease were admitted to these hospitals during last week, against 249, 173, and 179 in the three preceding weeks. Only 1 case of small-pox was under treatment in the Metropolitan Asylums at the end of last week. The 956 deaths registered in London during last week included 124 which were referred to pneumonia and other diseases of the respiratory system, showing an increase of 13 upon the low number in the previous week, and corresponding with the corrected average number in the corresponding week of the five years 1905–09. The causes of 37, or 1·1 per cent., of the deaths registered during the week in the 77 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Hull, Nottingham, Leicester, and in 50 other smaller towns; the 37 uncertified causes of death in the 77 towns included 6 in Birmingham, 4 in Sunderland, and 3 both in Blackburn and in Liverpool.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 854 births and 445 deaths were registered during the week ending August 6th. The annual rate of mortality in these towns, which had been equal to 12·0 and 12·7 per 1000 in the two preceding weeks, declined again to 12·3 in the week under notice. During the first five weeks of the current quarter the death-rate in these towns averaged 12·3 per 1000, and exceeded by 1·2 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 7·2 and 11·0 in Leith and Aberdeen to 16·8 in Perth and 17·5 in Dundee. The 445 deaths from all causes in the eight towns last week showed a decline of 15 from the number in the previous week, and included 44 which were referred to the principal epidemic diseases, against 58 and 46 in the two preceding weeks; of these 44 deaths, 26 resulted from diarrhœa, 5 from measles, 4 from whooping-cough, 4 from diphtheria, 3 from "fever," and 2 from scarlet fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 1·2 per 1000, against 1·1 from the same diseases in the 77 English towns. The 26 deaths attributed to diarrhœa in the eight towns last week showed an increase of 6 on the number in the previous week, and included 17 in Glasgow, 4 in Dundee, and 2 in Edinburgh. Two of the 5 fatal cases of measles occurred in Glasgow. The deaths from whooping-cough, which had been 12 and 11 in the two previous weeks, declined last week to 4. The 4 deaths resulting from diphtheria corresponded with the number in the previous week, and included 2 in Glasgow. The 3 deaths referred to "fever" were all returned in Glasgow; 1 was certified as typhus and 2 as cerebro-spinal meningitis. The deaths referred to diseases of the respiratory system in the eight towns, which had been 50 and 61 in the two preceding weeks, were 59 last week; they exceeded by 8 the number in the corresponding week of last year. The causes of 9, or 2·0 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 1·1 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 564 births and 337 deaths were registered during the week ending August 6th. The mean annual rate of mortality in these towns, which had been equal to 16·3 and 16·2 per 1000 in the two preceding weeks, further declined to 15·3 in the week under notice, and was lower than in any previous week of this year. During the first five weeks of the current quarter the annual death-rate in these Irish towns averaged 16·1 per 1000; the mean rate during the same period did not exceed 11·1 in the 77 largest English towns and 12·3 in the eight principal Scotch towns. The annual death-rate during last week was equal to 17·2 in Dublin, 15·3 in Belfast, 6·8 in Cork, 19·2 in Londonderry, 12·3 in Limerick, and 19·5 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish towns was equal to 13·6 per 1000. The 337 deaths from all causes in the 22 town districts last week showed a decline of 21 from the number in the previous week, and included 35 which were referred to the principal epidemic diseases, against 48 and 32 in the two previous weeks; these 35 deaths were equal to an annual rate of 1·6 per 1000; the rate last week from the same diseases did not exceed 1·1 per 1000 in the 77 English towns and 1·2 in the eight Scotch towns. The 35 deaths from these epidemic diseases in the Irish towns last week included 16 from diarrhœa, 10 from measles, 6 from whooping-cough, 2 from scarlet fever, and 1 from diphtheria; but not one either from enteric fever or from small-pox. The deaths attributed to diarrhœa, which had been 12 and 9 in the two previous weeks, rose to 16 last week, of which 10 occurred in Belfast and 2 both in Dublin and in Waterford. The 10 fatal cases of measles exceeded those in the previous week by 1, and included 7 in Belfast.

Of the 6 deaths from whooping-cough, 3 occurred in Dublin and 2 in Belfast. The 2 fatal cases of scarlet fever occurred in Dublin and Belfast. The deaths in the 22 towns included 44 which were referred to pneumonia and other diseases of the respiratory system, against 48 and 59 in the two preceding weeks. The causes of 8, or 2·4 per cent., of the deaths registered in the Irish towns last week were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 1·1 per cent., and 2·0 per cent. in the eight Scotch towns.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified: Staff-Surgeons: J. Macdonald to the *Vivid*, additional, for disposal; and A. J. Hewitt to the *Jupiter*, additional, for disposal. Surgeons: H. Burns to the *Halcyon*, additional, for the *Spanker*; and K. D. Bell to the *Andromache*, additional, for the *Niobe*.

ARMY MEDICAL SERVICE.

Colonel Daniel O'Sullivan is placed on retired pay (dated August 8th, 1910).

ROYAL ARMY MEDICAL CORPS.

The undermentioned Captains to be Majors: George B. Crisp and Cecil W. Mainprise (dated July 27th, 1910); Alic L. Scott, Lionel E. L. Parker, and Gerald H. Goddard (dated July 28th, 1910).

The undermentioned Lieutenants to be Captains: Winfrid K. Beaman, Colin Cassidy, Alexander D. Fraser, Archer Fortescue, Howard G. Gibson, Stephen Field, Frederick H. M. Chapman, Henry M. J. Perry, John L. Wood, Frederick T. Turner, Michael P. Leahy, William G. Aviss, John E. M. Boyd, Donald F. Mackenzie, Richard D. O'Connor, Owen R. McEwen, Malcolm O. Wilson, John du P. Langrishe, John C. Hart, Thomas H. Scott, Gerald F. Rudkin, Leopold A. A. Andrews, John H. Gurley, Alfred C. Elliott, William B. Purdon, Francis Casement, Edward M. Middleton, Vincent T. Carruthers, and Harold W. Farebrother (dated July 28th, 1910).

Colonel R. H. S. Sawyer, on promotion, has been appointed Administrative Medical Officer of Dublin District in place of Colonel E. North, who has retired. Lieutenant-Colonel T. O. O'H. Hamilton, C.M.G., on the expiration of the tenure of his appointment as staff officer to the Principal Medical Officer of the Aldershot Command, has been transferred to the Colchester District and posted to Warley. An exchange of stations has been approved between Lieutenant-Colonel H. Cocks from the Western Command and Major B. W. Longhurst from the Eastern Command. Lieutenant-Colonel S. E. Duncan has been appointed to the medical charge of the troops at Shrewsbury. Lieutenant-Colonel H. Scott has been appointed to the medical charge of the Military Hospital at Landguard Fort. Lieutenant-Colonel H. J. Fletcher has been granted three months' general leave in India. Lieutenant-Colonel H. O. Trevor has arrived home on leave from Jamaica. Major A. F. Tyrell, from Fermoy, has been placed in medical charge of Kilworth Camp. Major A. E. Milner, from London District, has taken up duty at Tidworth, Salisbury Plain. Major H. W. Grattan, Sanitary Officer of the 8th (Lucknow) Division, has been transferred to Naini Tal. Captain F. W. Cotton, on the termination of his leave, has been posted to the Western Command. Captain G. F. Sheehan, from Calcutta, has been posted to Barrackpore. Captain T. T. H. Robinson, from Mhow, has taken up duty at the Station Hospital, Neemuch. Captain H. C. Hildreth, from Dublin, has been appointed to the medical charge of the troops at Glen Island. Captain T. E. Harty, on return from a tour of service at Mandalay, has been posted for duty to Woolwich. Captain E. D. Caddell, from Subathu, Simla Hills, has taken up duty at the Station Hospital, Ambala Cantonment. Captain J. W. S. Seccombe has been transferred from Jullundur to Kasauli. Captain T. J. Wright, from Bere Island, has been posted to Dublin District. Captain S. M. W. Meadows has joined at Chatham from Landguard Fort. Captain J. T. McEntire, on arrival from Potchefstroom, South Africa, has been appointed to the Northern Command and posted to York. Captain K. A. C. Dodg, from Shahjahanpur, has been posted to the station hospital at Muttra. Captain M. H. G. Fell and Captain L. Bousfield have arrived home on leave from Egypt, and Captain W. L. Baker and Captain T. H. Gibbon have arrived home on leave from Malta. Captain H. O. M. Beadnell, Lahore Division, has been granted two months' extension of his leave on medical certificate. Lieutenant M. O. Wilson has been permanently transferred from the 4th (Quetta) Division to the 7th (Meerut) Division for special duty in connexion with the anti-typhoid inoculation of the Fourth Battalion Worcestershire Regiment. Lieutenant T. B. Nicholls, from Hilsea, has joined at Tidworth. Lieutenant J. J. H. Beckton has been transferred from Dover to Canterbury. Lieutenant A. D. Stirling, from Aston, has been posted to Edinburgh. Lieutenant R. M. Davies, from Chatham, has taken up duty at Gravesend.

INDIAN MEDICAL SERVICE.

Colonel G. W. P. Dennys, Principal Medical Officer of the Aden Brigade, has been granted three months' privilege leave from India. Lieutenant-Colonel J. A. Burton has been granted five months' leave home from India. Major W. H. Cox, D.S.O., has been detailed to carry on the duties of Principal Medical Officer, Aden Brigade, in addition to his own duties, as a temporary measure. Major G. Tate has been appointed a Specialist in Midwifery and Diseases of Women and Children to the Second (Rawalpindi) Division. Major E. Wilkinson, Officiating Sanitary Commissioner of Eastern Bengal and Assam, has been selected to carry on the duties of Sanitary Commissioner of the Punjab, vice Colonel C. J. Bamber, promoted. An extension of two months' leave has been granted to Major L. J. N. MacLeod, Bombay. On the termination of a course of instruction at Amritsar, Major W. H. Kenrick has been posted as Civil Surgeon to Nimar District, Central Provinces. Major T. Jackson, Major A. Hooton, and Major J. M. Crawford, Bombay, have arrived home on leave from India. Captain E. Whitworth Jones has been permitted by the Secretary of State to return to India. The services of Captain A. F. Babonau have been placed at the disposal of the Government of India for employment on plague duty in the Punjab. Captain H. S. Hutchinson has been appointed to the substantive medical charge of the 23rd Sikh Pioneers, vice Captain H. M. M. Melhuish, transferred permanently for employment under the Civil Department. Captain C. R. O'Brien, Officiating Civil Surgeon of Jailpaiguri, has been transferred to Barisal, Captain C. Godson from Barisal to Silchar, and Captain H. Tunes from Kachar to Mymensingh, Eastern Bengal. Captain W. H. Hamilton has been appointed Specialist in Ophthalmology to the Second (Rawalpindi) Division. Captain J. E. Clements, Civil Surgeon of Montgomery and Superintendent of the Central Jail, has been granted 18 months' combined leave home from India; Captain N. H. Hume has been appointed to relieve him. Captain W. H. Tucker has been granted 19 months' combined leave out of India. Captain N. E. H. Scott, Agency Surgeon of Maskat, has been granted combined and special study leave from India for 12 months. Captain T. W. Harley, Captain H. Hay Thorburn, Captain J. W. McCoy, Captain L. B. Scott, Captain A. W. Greig, and Captain W. M. Houston have arrived home on leave from India. Lieutenant J. J. H. Nelson, in charge of the Brigade Laboratory at Bangalore, has been appointed a Specialist in the Prevention of Disease to the 9th (Secunderabad) Division. Lieutenant G. F. James, Officiating Civil Surgeon of Mymensingh, has been transferred to Jailpaiguri, Eastern Bengal. Lieutenant R. E. Wright has been appointed Specialist in Otology, Laryngology, and Rhinology to the Burma Division.

The King has approved of the promotion of George William Patrick Dennys from Lieutenant-Colonel to Colonel (dated June 16th, 1910).

TERRITORIAL FORCE.

Royal Garrison Artillery, Hampshire.

Surgeon-Captain Alexander A. McKeith to be Surgeon-Major (dated Nov. 1st, 1909).

Wessex Divisional Engineers.

Surgeon-Captain Edward G. Stocker, from the 2nd Wessex Field Company, Wessex Divisional Engineers, Royal Engineers, to be Surgeon-Captain (dated July 15th, 1910).

Infantry.

6th Battalion, The Prince of Wales's Own (West Yorkshire Regiment): Surgeon-Lieutenant Richard Bladworth to be Surgeon-Captain (dated July 14th, 1910).

Royal Army Medical Corps.

2nd East Lancashire Field Ambulance: Captain Harry Washington Pritchard, from the 3rd East Lancashire Field Ambulance, Royal Army Medical Corps, to be Captain (dated March 7th, 1910). Andrew Walker Buist Loudon to be Lieutenant (dated May 10th, 1910).

1st Lowland Field Ambulance: Lieutenant Ernest Augustus Boxer, from the list of Officers attached to Units other than Medical Units, to be Lieutenant (dated May 24th, 1910).

2nd Welsh Field Ambulance: Captain Evelyn J. R. Evatt to be Major (dated June 27th, 1910).

4th Southern General Hospital: The officers and men of the 4th Southern General Hospital (commanded by Lieutenant-Colonel C. E. Russell Rendle) completed their course of training at the Military Hospital, Devonport, on July 24th. They were inspected on July 21st by Colonel R. Jennings, Administrative Medical Officer and Commanding R.A.M.C. of the Devonport District, and on July 22nd by Lieutenant-Colonel Sir J. R. A. Clark, Bart., C.B.

2nd Southern General Hospital: The unit, consisting of 40 non-commissioned officers and men of the 2nd Southern General Hospital, commanded by Lieutenant-Colonel J. Paul Bush, C.M.G., left Bristol on July 23rd for 15 days' training at the Military Hospital, Devonport.

1st Northumbrian Field Ambulance: Major (Honorary Lieutenant in the Army) John Clay, to be Lieutenant-Colonel (dated July 9th, 1910).

2nd Northumbrian Field Ambulance: Major Lawrence J. Blandford to be Lieutenant-Colonel (dated July 9th, 1910).

1st London (City of London) Sanitary Company: Joseph Grounds to be Lieutenant (dated May 31st, 1910).

Attached to Units other than Medical Units.—Lieutenant-Robert H. Gilbert-Bruce to be Captain (dated August 24th, 1909). Lieutenant William J. Caie to be Captain (dated June 15th, 1910). Lieutenant Andrew Currie resigns his commission (dated August 10th, 1910). Lieutenant Alexander Cruickshank to be Captain (dated April 1st, 1908). Lieutenant John Stewart resigns his commission (dated August 6th, 1910). Lieutenant Norman S. Carmichael resigns his commission (dated August 6th, 1910).

MEDICAL BRANCH OF THE NAVY LEAGUE.

We briefly referred to the formation of this branch of the Navy League in THE LANCET of August 6th, p. 431. We have now received a report of the meeting inaugurating the branch which was held on July 29th at the Imperial Institute. Dr. W. P. Herringham, chairman of the provisional committee, explained that some months ago it was thought advisable to form a branch of the Navy League for medical men. They saw a good deal of the world and could thus influence many people. Notices suggesting the formation of a branch were issued and a considerable number of members had already joined. Dr. Maurice Craig moved and Dr. Percy M. Smith seconded: "That a medical branch of the Navy League be and is hereby formed." This was unanimously agreed to. The chairman announced that Sir Richard Douglas Powell had consented to act as president of the branch. Sir Richard Douglas Powell then took the chair. The following were elected as officers and committee:—President: Sir Richard Douglas Powell. Treasurer: Dr. Smith. Honorary Secretary: Dr. Craig. Committee: Mr. G. Lenthal Cheatle, Dr. W. H. Clayton-Greene, Dr. Fawcett, Sir Alfred D. Fripp, Dr. W. P. Herringham, Dr. A. Latham, Mr. W. T. Lister, Dr. Macnamara, Mr. H. S. Pendlebury, Mr. Hugh M. Rigby, Dr. J. S. Risien Russell, Dr. H. Scurfield, Dr. Lewis A. Smith, Mr. J. M. G. Swainson, Dr. Campbell Thomson, and Dr. H. G. Turney. Sir Richard Douglas Powell stated that the Prime Minister observed some time ago that the maintenance of a sufficiently powerful Navy was essential for the preservation of the vital interests of 40,000,000 of people in these islands. He might also have said it was necessary for the vital interests of many more millions of imperial and colonial subjects of the King. The Chancellor of the Exchequer said he regretted that matters of social reform had to be deferred for the building of "Dreadnoughts." The nation felt that social security must have precedence of social reform. Reforms were no good unless they were based on the security of the country. The Medical Branch of the Navy League was not for the purpose of supplying medical aid and comforts in time of war, but for the purpose of securing the interest and advocacy of medical men in favour of the provision of a strong Navy. Commander Crutchley (secretary to the Navy League) also addressed the meeting, and Dr. Craig, in moving a hearty vote of thanks to Sir Richard Douglas Powell, stated that the membership was steadily increasing. The five-shilling members were as important as the guinea ones, and it was felt that a large number of medical men would pay the smaller subscription in order to further the welfare of a great cause. Application for membership should be sent to the honorary secretary at 54, Welbeck-street, London, W.

Surgeon-General William W. Kenny has been appointed an Honorary Surgeon to the King in the place of Surgeon-Major-General J. G. Faught, deceased.

Correspondence.

"Audi alteram partem."

INTERNATIONAL CONGRESS ON DISEASES OF OCCUPATION, BRUSSELS.

To the Editor of THE LANCET.

SIR,—I have pleasure in forwarding you a list of contributions by English experts to the International Congress on Diseases of Occupation to be held in Brussels from Sept. 10th to 14th. It will be noted that the honorary secretaries have succeeded in obtaining papers under every heading, and the names of the writers should be sufficient to vouch for their high standard. French, English, German, and Italian are the official languages of the Congress, and each contribution will be printed in the language in which it is written; abstracts in the other three languages will be distributed along with the paper. The business-like method of sending out printed copies of all papers and abstracts to members before the Congress meets, and of allowing each contributor to expound on his subject for ten minutes when brought up before the Congress, has been adopted.

All the questions taken up by our own experts are important, though probably the most interesting from a national point of view will be that of medical service. Every class of medical supervision and aid adopted in connexion with industrial pursuits in different countries will be explained and discussed from an international standpoint, and a special effort is being made to obtain as much information as possible on the methods adopted on the leading railway systems of the world. To the latter part of the subject eight of our principal railway companies have contributed valuable data. The duties of the certifying surgeon, along with all other national systems of medical inspection, are to be explained and discussed, so that there will be every opportunity for making comparisons, and those of our own legislators who have recently shown so much interest in the Home Office Vote will be able to ascertain if our continental friends have been able to achieve anything more economical than a sixpenny medical examination or a shilling certificate of industrial poisoning.

The Congress is being very well supported from this country, a considerable number of certifying surgeons, insurance medical officers, and medical referees having already signified their intention to be present. Applications for membership can be obtained from Dr. W. F. Dearden, 15, Salisbury Buildings, Trafford-road, Manchester.

I am, Sir, yours faithfully,

Manchester, August 9th, 1910. W. F. DEARDEN.

PAPERS FROM BRITISH CONTRIBUTORS.

Question I.

"The English Workmen's Compensation Act: With Special Reference to Hernia, Lumbago, Heat Stroke, and Caisson Disease." Dr. R. J. Collie, Medical Referee under the Workmen's Compensation Act, Medical Examiner to the London County Council.

"Small-pox as an Industrial Accident." Dr. H. E. Corbin, Medical Officer of Health, Stockport.

Question II.

"The Function of the Certifying Factory Surgeon." Dr. W. F. Dearden, Honorary Secretary, Association of Certifying Factory Surgeons.

"Certificates of Fitness in the Cotton Trade." Dr. A. Glen Park, Certifying Surgeon, Bolton.

"Statistical Studies of Phthisis as an Occupational Disease." Dr. T. D. Lister, Consulting Medical Officer to the Royal Exchange Assurance Corporation.

"Descriptions of Systems of Medical Service Adopted by Leading British Railway Companies." Dr. J. G. McBride, Medical Inspector to the North-Eastern Railway Company; Dr. T. M. Watts, Medical Officer to the Great Central Railway Company's Employees' Friendly Society; and Dr. W. F. Dearden, on behalf of a number of Companies.

Question III.

"Experience of Ankylostomiasis in Cornwall." Dr. A. E. Boycott, Lecturer on Pathology, Guy's Hospital.

"Incidents in the Life-history of Ankylostoma Duodenale." Professor Sir Thomas Oliver.

Question IV.

"Glass Worker's Cataract." Dr. W. Robinson, Surgeon to the Sunderland and Durham Eye Infirmary, &c.

Question V.

"Caisson Disease." Lieutenant G. C. C. Damant, R.N., H.M.S. *Excellent*, Portsmouth.

Question VI.

"Gaseous Poisons: With Special Reference to Hydrogen Arsenide and Hydrogen Phosphide." Professor John Glaister.

"A Contribution to the Study of Aniline Poisoning." Dr. R. Prosser White, Surgeon to the Roburite Explosives Company, &c.; and Dr. A. Sellers, Public Health Laboratory, Manchester.

"Some Unusual Features of Lead Poisoning." Professor Sir Thomas Oliver.

"Ten Years' Experience of Notification of Lead Poisoning." Dr. T. M. Legge, H.M. Medical Inspector of Factories.

"Early Indications of Lead Poisoning." Dr. S. King Alcock, Certifying Surgeon, Burslem; Medical Referee under the Workmen's Compensation Act, &c.

THE SUPPRESSION OF QUACKERY.

To the Editor of THE LANCET.

SIR,—The question raised by Mr. P. M. Yearsley is one of vital importance to the welfare of the people of this nation. The length which quackery has reached is most serious. The Anæsthetic Report of the Coroners' Committee, which calls attention to the fact that any Dick, Tom, or Harry can administer anæsthetics, and the decision of the Lord Chancellor in the case of Bellerby *v.* Heyworth that the Medical and Dental Acts only protect "titles," prove conclusively that the public has no protection from those who, having had no medical education, and therefore are unregistered practitioners, profess to be curers of disease.

Mr. Churchill, in answer to a pertinent question asked in the House of Commons by Mr. Marshall Hall, said that legislation is to be introduced dealing with the anæsthetic question. It must be obvious to all unprejudiced people that to legislate on this question only and to leave untouched the far more important one of the professed cancer and consumption curers and the rest of the unregistered practitioners is undesirable; the whole question needs Governmental treatment. We ask for protection of the public and not of the profession; the practice of unregistered persons increases rather than decreases the work of the qualified practitioners When the quack has done his worst or his best the poor wretches who have been victimised invariably turn for help to the qualified, but only in most cases when it is too late. It is an open secret that there are British Medical Association and British Dental Association Bills being promoted by the two associations respectively. I suppose it is equally certain that neither will become law. In consequence of the coroners' report and the Lord Chancellor's decision a great opportunity has arisen for the profession to promote legislation on the whole subject, and I for one am a "whole hogger."

How best to deal with the subject is a question that might well be ventilated in your columns, and as one who has for many years considered the problem, due to the fact that as honorary secretary of the British Dental Association some years since I had to face it, I am venturing to throw out my own conclusions upon the question in the hope that many others with larger experience and greater knowledge may be led to do the same. My suggestions are: That we should not attempt to rescind past legislation or suggest radical changes in the methods of qualification and registration, but endeavour to secure the introduction of a Governmental measure to deal with unregistered practice only. That the Presidents of the General Medical Council, the Royal College of Surgeons of England, and the Royal College of Physicians of London, the Regius professors of medicine of Oxford and Cambridge, together with similar representatives from the provincial universities, should go as a deputation to the Prime Minister and Home Secretary and state our case and our requirements. That the demand made to them should be: (1) the restriction of medical and dental practice to registered practitioners; (2) a penal clause; and (3) a clause to deal with vested interests—viz., that all unregistered practitioners now in practice should be permitted to obtain registration, on condition that they pass the respective examinations for medical or dental registration, without requiring them to fulfil the respective curricula.

It appears to be necessary that the Bill should be so short and so worded that no explanatory clauses are needed, in order that there may be no possibility of legal evasions of it.

I am, Sir, yours faithfully,

Cavendish-square, W., August 8th, 1910. MORTON SMALE.

To the Editor of THE LANCET.

SIR,—For some time I have not troubled you on this subject, but the back volumes of THE LANCET can testify that it has engaged my attention for at least 30 years. With this experience I do not hesitate to affirm that a society for the suppression of quack advertisements such as Mr. Macleod Yearsley proposes to start must prove a failure; but if a society for the suppression of quackery can be founded and provided with ample funds it could bring about legislation which would put an end to most of the evils and abuses complained of. The vast majority of newspapers, including many of those that stand in the front rank of journalism, are virtually suborned by quackery. I use the word advisedly. The conduct of the bulk of the press in this connexion forms one of the greatest scandals of the present day. They set themselves up as censors of morals, guardians of the public welfare, protectors of the national honour; the majority are supporting themselves or amassing wealth by aiding and encouraging the army of adventurers which by one or another cynical dodge preys upon the simple public. The papers I allude to not only fill their pages with advertisements the fraudulent character of which is evident to their managers and editors, they suppress or curtail all matter, including law proceedings, through which the victims of quackery, mostly the poorer classes whose interests they profess to have at heart, might perchance gain the knowledge they so sadly lack. The attitude of these papers towards fraudulent commercial enterprises is much the same. With the exception, perhaps, of the *Spectator*, papers whose pages are undefiled decline to criticise their brethren, and restraint from that direction cannot be looked for. Quackery, practice by unqualified pretenders, and the traffic in secret remedies and bogus apparatus, under the cloak of which much illicit practice is carried on, constitute one of the greatest evils of the present day. The benevolent public do not know its secrets; if they did we might soon see established societies to attack it. It is not only fraudulent, it is cruel and murderous, and its chief and most pitiable victims are among the poor. An anti-quackery society would probably produce from amongst its more impressionable members fanatics like those that devote their lives to antivivisection and similar causes, and a great noise would be made, perhaps with the effect of making itself heard in time by statesmen and the Legislature. A society supplied with enough money might at least prepare a case which would prove the urgent necessity for a Government inquiry. I have long advocated the promotion of a Royal Commission to inquire into the whole question of medical law, including the traffic in

quack remedies. The movement has now really got a start, and if the profession had any political power, if it possessed any organisation capable of making its voice audible, there would be no doubt that this necessary preliminary step would soon be taken. The case for legislation is overwhelming; it needs only authoritative statement to compel the attention of Parliament. It can be proved that the suppression of coarse quackery would not, from the sordid point of view, constitute an unmitigated advantage to doctors. Quackery forms a potent cause in deterioration of the public health, and, if checked, the income doctors now derive from invalids with maladies created or aggravated by quackery would at any rate be cut off. Nor would the question of legitimate medicine and surgery as science and art come within the scope of the proposed inquiry. If there did not exist one single scientific fact on which to base the practice of our profession throughout, it would still be easy to make plain to all intelligent minds the quality of quackery—a mass of falsehood, undiluted, gross as a mountain, open, palpable. The appointment of a public prosecutor charged to put in force existing statutes would enable proceedings to be taken against many quack medicine proprietors for getting money under false pretences. This was proved in the well-known case at the Lewes assizes three years ago. Amendment of the Food and Drugs Acts would provide further powers in the same direction; and there can be no doubt that Parliament once resolved upon action would find no difficulty in constructing effectual legislation. If, thanks to simple laws, an unqualified solicitor cannot live under any false pretence, it ought not to be difficult to construct a Medical Act which should at least prevent a fraudulent pretender from palming himself off even upon educated people as a legally qualified practitioner.

I am, Sir, yours faithfully,

HENRY SEWILL.

Earlswood Common, Surrey, August 6th, 1910.

GRAIN ITCH.

To the Editor of THE LANCET.

SIR,—I notice in THE LANCET of July 9th that you refer to "grain itch," and consider it might be of interest to hear of cases occurring in this country. I had a case last year which I strongly suspected to be of that nature. A vessel arriving here from Quebec reported having a case of variola on board. On visiting the vessel I found that the patient was a passenger who had come from a district in Canada where some small-pox had occurred, and that she had passed a night or two in Montreal, where she had slept on a straw mattress. She was taken ill on July 17th, one day after sailing, with malaise, fever, a temperature of 103° F., and an eruption.

The eruption was extremely itchy and was distributed irregularly on the face, neck, and trunk, and also on the arms. It was papular in form, but became vesicular within 24 hours, the change occurring first on the face. These vesicles rapidly dried up. Both the ship's surgeon and the patient's own medical attendant, who happened to be on the boat, were of the opinion that she was suffering from small-pox, and she was, of course, isolated. At the time I saw her, eight days after onset, the rash had completely disappeared from the face, and only a blotchy discolouration of the skin marked the site of the lesions on the trunk. Considering the rapid development, irritability, and evanescent character of the rash, I was extremely doubtful of a diagnosis of small-pox, but as a precautionary measure she was isolated in hospital. Within four or five days a fresh rash appeared, mainly on the face, arms, and upper chest, and consisted of large wheals and blotches of a pink colour. They did not become vesicular. They were excessively itchy, so that the patient could not sleep and wanted to "tear herself to bits." The rash rapidly disappeared with disinfecting baths and the patient was allowed to proceed.

At the time I was unable to give a name to the disease, but I saw a note by Dr. Goldberger and Dr. Schamberg in the United States Marine Hospital Report for July 9th, 1909, under the heading "Urticarioid Dermatitis." It is there mentioned that the disease has occasionally been taken for small-pox, but more often for chicken-pox. The itchiness alone should differentiate it from either. But the presence of fever and the eruption is very suggestive, to anyone unacquainted with the disease, of an acute specific fever. I have very little doubt that the case I saw was of the nature described by Dr. Schamberg, though I did not verify it by finding the parasite. A further description of the disease with plates, under the title "Straw Itch," occurs in the United States Marine Hospital Reports for June 10th of this year.

I am, Sir, yours faithfully,

C. O. STALLYBRASS, M.D. Lond.,
Assistant Port Medical Officer.

Liverpool, August 6th, 1910.

HEART PUNCTURE.

To the Editor of THE LANCET.

SIR,—Direct puncture of the heart for therapeutic purposes, as related in Mr. J. Wallace Milne's interesting communication in THE LANCET of August 6th, p. 377, has rarely been done, and details of every such case are therefore desirable. It would be of interest to know more particularly what the heart-rate and rhythm of this case were. If any reliable tracings were taken they would also be of interest. I conclude there was no post-mortem examination of the body, but it would be of interest to learn definitely whether the pericardial sac remained free from any evidence of effusion after the puncture and also what the *immediate* consequences of that procedure were on the position, size, and action of the heart. I feel sure that a reply to these questions would interest your readers and add to the value of Mr. Milne's important communication, as his present notes, though highly interesting, are expressed, if I may say so, in too general language for scientific record. A surgeon will pardon the curiosity of a physician.

I am, Sir, yours faithfully,

ALEXANDER MORISON.

Upper Berkeley-street, August 6th, 1910.

PSYCHO-THERAPEUTICS AND MEDICAL EDUCATION.

To the Editor of THE LANCET.

SIR,—The recent appreciative notices of the power of the mind in medicine in our leading medical journals encourage me to bring before your readers an important matter in connexion with the subject. For five-and-twenty years I have been fully convinced that the absence of any instruction in mental therapeutics in our medical curriculum resulted in a threefold evil to our profession: (1) It left them in ignorance of the powers and right use of a force which they *unconsciously* employed every day; (2) it enabled many quacks, by exploiting this power for their own ends, to rob doctors of many of their best patients; and (3) it resulted in a large loss of money and prestige to the profession.

The *first* needs little proof. The mind can as readily be made to do evil in medicine as to do good, and the personality of the physician has a constant power for good or evil with his patients of which he may be but little aware, but which not only may affect their recovery, but undoubtedly is the leading factor in the doctor's own success or failure. The *second* is the subject of a remarkable letter from Sir James Paget to Sir H. Acland of Oxford as follows: "What unsatisfactory ..... cases these are! This clever, charming, and widely known lady will some day disgrace us all by being juggled out of her maladies by some bold quack, who by mere force of assertion will give her the will to bear, or forget, or suppress, all the turbulences of her nervous system."[1] The *third* is known and deplored everywhere, but no real remedy exists save what I suggest—viz., the study and knowledge of psycho-therapeutics.

That this is not done I proved last year at Belfast, when as the result of an exhaustive inquiry at the medical schools of the United Kingdom and Ireland I found that nowhere, with one exception, was applied medical psychology (of the sane mind) taught. Without, therefore, saying more at present, I would again urge upon the profession, as I did at Sheffield, to consider whether the time has not now arrived for including definite instruction in the powers of the mind in medicine in our medical curriculum. There can be no doubt that before long we shall look back on our present

[1] Sir James Paget: Life and Letters. Longman, fourth edition, p. 277.

state of ignorance of this important branch of medicine with amazement.—I am, Sir, yours faithfully,

ALFRED T. SCHOFIELD, M.D. Brux.

Harley-street, W., August 8th, 1910.

A STEAMER WITH SPECIAL MOSQUITO SCREENS.

To the Editor of THE LANCET.

SIR,—Referring to the letter from Dr. H. Wolferstan Thomas, published in THE LANCET of July 9th, p. 130, it will possibly be of interest to your readers to learn that our s.s. *Vincent* therein referred to has just returned to Liverpool from Porto Velho, River Madeira, and during the whole voyage no single case of fever was contracted on board, thanks to the very effective anti-mosquito screening which Dr. Thomas fully describes. We believe the *Vincent* to be the first steamer to have navigated the Madeira without the crew contracting malaria.—Yours faithfully,

THE BOOTH STEAMSHIP COMPANY, LIMITED.
CLEMENT W. JONES, Director.

Liverpool, August 3rd, 1910.

WALES.

(FROM OUR OWN CORRESPONDENT.)

Glanders among Colliery Horses.

A FEW months ago the medical officer of health of Ebbw Vale, Mr. J. W. Davies, in a report upon the condition of the underground colliery workings in the district, referred to the suspected existence of glanders among the pit horses and suggested that steps should be taken to ascertain the truth or otherwise of the suspicions. Mr. Davies was not permitted by the colliery managers to visit the workings, but the chief veterinary inspector of the Monmouth county council recently made an inspection of all the horses working in the collieries concerned. He tested 281 horses with mallein, and in 94 instances the test reacted. All these horses were slaughtered, and in every instance post-mortem examination revealed the existence of disease, although while alive there were no definite clinical signs observed. In his report to the county council on the question the veterinary inspector stated that the Blaenavon Colliery Company since early in 1904 had tested before purchase all horses used in their collieries, and he suggested that this course should be followed in all collieries. He also urged that the testing of "cast-offs" before sale should be made compulsory.

Country Nursery for Poor-law Children.

The Cardiff board of guardians has given favourable consideration to the suggestion of Mr. Andrew Fuller, one of the Poor-law medical inspectors of the Local Government Board, that there should be provided at the Children's Homes at Ely, near Cardiff, a nursery for the weaned children who at present remain in the workhouse at Cardiff. The surroundings of these babies will undoubtedly be improved, and it is further proposed that the older girls at the homes shall be trained as nursemaids, the transferred babies being used as training material. A one-storey pavilion surrounded by a verandah is to be erected at a cost of £1500, and will be used as a nursery.

The Water-supply of the Western Valleys of Monmouthshire.

For several years past attempts have been made to obtain the consent of Parliament to a comprehensive scheme for the supply of water to certain portions of the thickly populated districts in the western valleys of Monmouthshire. In 1908 the county council was unsuccessful in its endeavour to provide a supply for a large portion of the coalfield in the county, including the western valleys, but in rejecting the council's Bill the Parliamentary Committee, who had it under consideration, suggested that a joint water board formed from certain of the district councils might very properly promote a scheme which would probably be favourably received by Parliament. A Bill with this end in view was accordingly promoted in the current session and has received the Royal assent. The localities to which the supply is to be provided are the urban districts of Abertillery, Abercarn, Risca, and Mynyddislwyn. At the census of 1901 they had an aggregate population of over 60,000, and the number is now probably approaching 100,000. The scheme provides for a large impounding reservoir and for four service reservoirs.

August 9th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Progress of Depopulation.

THE number of births in France has never been lower than in 1909, only 769,969 live births having been registered, which is a decline of 21,743 on the previous year. The excess of births over deaths was only 13,242, an increase of the population of France to the extent of 3 per 10,000. The excess of births is about 33,000 less than in 1908. Although in 1909 the population increased by only 13,242, there had been an increase of 46,411 in the previous year. This diminution of the excess of births was caused to the extent of about one-third by an increase of the number of deaths, which were more numerous by 11,274 in 1909 than in 1908; and to the extent of two-thirds by an actual decrease in the number of births (769,969 births in 1909, as compared with 791,712 in 1908). The annual increase of the population is from six to ten times more rapid in other countries than in France. In the northern parts of France, in Brittany, on the eastern frontier, in Limousin, and in Corsica the birth-rate was higher than the death-rate, but, on the other hand, in the basins of the rivers Garonne and Rhone there were more deaths than births. In the department of the Seine 73,466 live births and 74,576 deaths were registered in 1909, the net result being an excess of 1110 deaths.

The Pathogenetic Relations of Variola and Vaccinia.

At a meeting of the Academy of Medicine held on July 19th M. Kelsch made a communication on the subject of the pathogenetic relations of variola and vaccinia confirming his previous researches. He said that heifers inoculated with the virus of human small-pox did not contract vaccinia if care was taken to isolate them. The positive results obtained elsewhere, which have led to a belief in the identity of the two diseases, could only occur in heifers left in contact with other animals suffering from vaccinia. In this case mere inoculation with glycerine was sufficient to cause the appearance of vaccinia in these heifers by contagion; in the experience of M. Kelsch this result happened three times out of four. Some experimenters have inoculated vaccinia in these circumstances, and have come to the conclusion that effects which would have been produced equally well with ordinary glycerine were to be interpreted in a positive sense. They had, however, make the mistake of adopting a faulty method, and the inferences arrived at were inadmissible.

Surgical Treatment of Renal Calculus.

For the surgical removal of renal calculi Dr. Bazy is not in favour of nephrectomy or opening of the kidney with a search for the calculus, followed by suture of the kidney. He prefers pyelotomy or opening the renal pelvis, performed by preference on its posterior aspect. This operation has the advantage of not disturbing the tissues of the kidney and of not interfering with its functional action in the future—a consideration which is of importance when the other kidney is impaired. Even when the pelvis contains infective products the cicatrisation proceeds normally. The operation is of only average duration and not severe. A preliminary radiographic examination might be made for the purpose of determining whether nephrectomy or pyelotomy is the preferable operation.

Public Health in Algeria.

The Governor of Algeria has issued a public notice in French and Arabic to the effect that flies, mosquitoes, fleas, bugs, and lice (the latter alike of man and of the domestic animals), are not only troublesome from the bites which they inflict, but are dangerous from their power of communicating illness, and ought therefore to be destroyed. Among certain tribes there is a disease called "typhus," which especially attacks persons addicted to self-neglect. It is disseminated by insects, fleas, bugs, and more particularly by lice, which draw blood and the germs of disease from patients and afterwards bite and infect healthy individuals. Habits of personal cleanliness, washing and boiling clothes, frequent

bathing and house cleaning will almost certainly prevent infection. Patients ought to have well-ventilated rooms. Healthy persons ought not to sleep with them or to use their linen until it has been boiled for the purpose of destroying the insects.

The Etiology of Cirrhosis of the Liver.

From the clinical observation of several hundred cases of retractile cirrhosis of the liver, Dr. Lancereaux has come to the conclusion that it is due not so much to the alcohol contained in wine and beer as to the preservative processes (*plâtrage et sulfatage*) to which these beverages have been subjected. In the interests of public health, if this view can be upheld, the methods are to be deprecated.

August 9th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

A Case of Chloroform Habit.

Dr. Storath, assistant physician to the St. Rochus Hospital at Mayence, has described in the *Deutsche Medizinische Wochenschrift* a case of chloroform habit lasting for 15 years. The patient was a woman of 51 years of age who had suffered from migraine since childhood. In the year 1895, when she was 36 years of age, a medical man prescribed for her an ointment consisting of chloroform, oil, and spirit to be applied on the forehead. She very soon found that this had a narcotic action and she accordingly inhaled the vapour instead of applying the ointment on the skin. From 1895 to 1897 50 grammes were taken daily and from 1897 to 1901 three or four times a week, the result being that the headache disappeared. From December, 1901, till April, 1902, she was in a hospital under treatment for hysterical fits, and afterwards did not take chloroform for two years, but then again resumed her previous habit. She was again twice in the hospital, the last time being from December, 1905, till March, 1906, when she was transferred to an invalids' home where she at first abstained from the inhalation of chloroform, but began to indulge in the drug again after nearly two years. It was in that home that her habit was first detected, as she was once found in her room by the house physician in a state of deep narcosis with abolition of the reflexes. She was therefore again admitted to a hospital and her supply of chloroform was effectually stopped without any symptoms of excitement ensuing. She did not exhibit any characteristic symptoms of poisoning; her mental condition was completely normal, and, apart from slight hyperæsthesia on the left leg and an increased reflex irritability due to the coexisting hysteria, she appeared quite healthy and in a comparatively good state of nutrition. The characteristic feature of the case was that although the chloroform habit had persisted for 15 years the dose was not increased but remained nearly the same all the time, therein differing from what is usually observed in cases of the abuse of morphine and other drugs; the chloroform, moreover, did not produce any morbid condition in the body either of a somatic or of a psychic nature, and no harm seemed to result when the use of the narcotic was abruptly discontinued.

Statistics of German Universities.

The number of students matriculated at the 21 German universities during the present summer semester was not less than 54,854 (of whom 2169 were women), as compared with 51,700 in the year 1909, and 33,700 in 1900. Apart from the matriculated students 2686 men and 1226 women were allowed to attend lectures without matriculation. The increase of students since the preceding year was principally in the faculty of philosophy, where the number rose from 13,911 to 15,475, and in the medical faculty, where it increased from 9462 to 10,682. The four largest universities are those of Berlin with 7902 students, Munich with 6890, Leipsic with 4592, and Bonn with 4070. Next in order come those of Freiburg with 2884 students, Halle with 2451, Breslau with 2432, Heidelberg with 2413, Göttingen with 2353, Marburg with 2192. Tübingen with 2061, Münster with 2007, Strasburg with 1964, Jena with 1817, Kiel with 1760, Würzburg with 1429, Königsberg with 1381, Giessen with 1334, Erlangen with 1030, Greifswald with 1029, and Rostock with 834.

The Position of Extraordinary Professors in the Universities.

It has for a long time been an object with the extraordinary professors to enjoy the same privileges as the ordinary professors. The former are not eligible for the office of dean or rector and have no votes in questions concerning their respective universities, the administration of which is exclusively in the hands of the ordinary professors. This undesirable state of things is now somewhat improved as far as Prussia is concerned. A recent Royal order entitles the extraordinary professors to a vote in subjects concerning their special branch of science, provided that no ordinary professor exists for that branch. They are further authorised to vote in the election of the rector and of the deans, but with the restriction that the number of their votes must never exceed half the number of the votes of the ordinary professors. When the latter is the case the junior extraordinary professors must abstain from voting.

Disinfection of the Surgeon's Hands before Operating.

Opinion with respect to the most efficacious mode of disinfecting the skin for surgical purposes is undergoing a remarkable alteration. Washing and brushing, which have hitherto formed a principal feature in the operation room, will soon be a thing of the past here. The painting of the field of operation with tincture of iodine, devised by Dr. Grossich, has more and more replaced the modes of disinfection formerly in use. Dr. Schumburg of Strasburg, a staff-surgeon of the army, has recently warned surgeons against reliance on washing their hands with soap and water. He has found by bacteriological research that brushing the hands with soap and hot water does not destroy the germs, even when continued for 15 or 20 minutes, but that washing with 200 grammes of absolute alcohol destroys 99 per cent. of the germs. Instead of a brush, a piece of gauze moistened with the alcohol is used. According to him the soap softens the skin and the capsules of the bacteria so that the latter stick to the skin and cannot be removed by the brush. The alcohol, on the contrary, hardens the skin and the capsules of the bacteria so that the adhesion between them decreases, the result being that the bacteria can be easily removed from the skin by a piece of gauze. Preliminary washing with soap and water is to be avoided because the alcohol becomes diluted and the skin damaged. By order of the Army Medical Department the new method has been tried in the larger military hospitals and the reports are very favourable.

August 8th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENT.)

The Public Health of Cuba and Porto Rico.

WHEN the United States Government first occupied Cuba, following the Spanish war, yellow fever, small-pox, and tuberculosis were the prevailing and most fatal diseases of the island. They were indeed a constant menace to the prosperity of the people both in their social and commercial relations with neighbouring nations. Every season the seaports of the United States exercised quarantine against vessels from Cuban ports to prevent the introduction of yellow fever. The measures of prevention of these pestilences, inaugurated by the United States military authorities and continued under the present Department of Public Health, have so reduced their prevalence as completely to relieve public apprehension and allow of free intercourse of the people and of transportation in commerce, to the great improvement of the economic conditions of the island. Dr. Juan Guiteras, director of public health, in reply to criticisms of his management of the department, can refer with pride to the increment in the Cuban population owing both to the increase of births and the decrease of mortality; to the disappearance of small-pox; to the reduction of the mortality from malaria, bringing it down from the first to the eighth place in the mortality records; to the eradication of yellow fever, with its average yearly record of 600 deaths in the city of Havana alone; to the disappearance of the borras fever so fatal to children; to the gradual decrease of the mortality from infantile tetanus and tuberculosis. All this you have allowed me to say before in your columns, but I should like now to point out that not less striking has been the improvement of the public health of Porto Rico under the control of the United States Government. Dr. Pedro Gutierrez Igaravidez, Director of the Service of Tropical and Transmissible Diseases of Porto Rico, and Dr. Bailey K. Ashford, of the United States army, in a recent report, "Summary of a Ten Years' Campaign against Hookworm Disease in Porto Rico," give the history of the work of the

health authorities in the effort to exterminate this cause of national ill-health and the chief source of an excessive mortality. It should be stated that during the period of ten years of occupation small-pox and yellow fever, formerly very prevalent and fatal, have disappeared altogether from the mortality records. The national disease of the Porto Ricans was anæmia which chiefly affected the poor classes. The authorities created an "Anæmia Commission" to study the cause of this disease, and the result was the discovery of the hookworm parasite. It was estimated that this parasite was the scourge of 90 per cent. of the agricultural labouring population of the island, a class representing at least 600,000 souls out of a million population, and that it caused 30 per cent. of the deaths. The next step was to discover a successful method of treatment and this inquiry resulted in the adoption of thymol as the special remedy. The commission stated in its second report that "five doses of thymol given a week apart are sufficient to practically cure nearly every patient and to reduce the power of infectivity of the patient to the soil about 19-20ths." To reach the people dispensaries were established in all of the principal towns, printed circulars were widely distributed, and sanitary inspectors were sent out to give lectures to the people. The result of the sanitary work in Porto Rico may be seen in the following. During the five years of Spanish rule preceding its occupation by the United States the death-rate averaged 28·9 per 1000 population, but during the last five years of American rule it averaged 23·3 per 1000 population. The report states that "it can sincerely be stated that the fall in mortality can be attributed almost entirely to the campaign of these five years against the disease, which more than all else has given a mortality far above what Porto Rico, a naturally healthy country, should have." The results of the relief of the agricultural labouring class from the crippling effects of the anæmia due to the hookworm parasite are seen in the greatly increased products of the land reported by the Government.

July 20th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

THERE were 891 deaths from plague reported as having occurred in all India for the week ending July 2nd, as compared with 979 in the preceding week. The Punjab returned 582 deaths, Bombay Presidency 114, Burma 102, Madras Presidency 34, the United Provinces 22, Mysore State 16, and Bengal Presidency 11. The reports that plague has been virulent of late in Southern Persia have not been confirmed by any official information in the possession of the Government of India. The latest returns available from Bushire show 43 cases and 34 deaths during the month of May, and it is not likely that there has been any increase during the great heat of June and July.

Improved Pay for Assistant Surgeons.

A resolution in the *Calcutta Gazette* lays down new rules regarding the prospects of sub-assistant surgeons. Existing grades of pay are from Rs. 25 to Rs. 70. The new grades will be from Rs. 30 to Rs. 100. Revised rules are laid down as to free quarters, house rent, and other allowances, while pay fines have been much reduced. The Inspector-General of Hospitals has been instructed to rearrange the service in new grades.

The Health of the Army in India.

In a circular memorandum recently issued by the Commander-in-Chief attention is drawn to the notable reduction in the disease, mortality, and invaliding prevalent in the European army of India. The figures show a progressive and very marked diminution both in the total number of cases coming under treatment and the deaths from all causes. Thus, among British troops the death-rate per 1000 in 1909 was but 6·23, as compared with 9·1 in 1908 and 17·18 in the decade 1894–1903. Similarly, the number of men constantly sick has been reduced from 5374 in the same period to 2879 for last year. These two sets of figures mean a saving of some 600 lives annually and an addition to the fighting strength of the British garrison of about 2400 men. Enteric fever between 1894–1903 caused on an average 1476 attacks and 380 deaths yearly. In 1909 there were only 636 cases with 113 deaths. Similarly, the amount of dysentery has been reduced to one-half, of malaria to two-thirds, and of venereal diseases to one-fifth. In corroboration of these facts the number of invalids sent home has fallen considerably. Thus, as compared with five years ago the number of officers invalided has dropped from 119 to 40, of women and children from 276 to 50, of non-commissioned officers and men from 2105 to 534, and of insanes from 75 to 50. For the causes which have led up to this remarkable amelioration in the sanitary state of the European army in India the Commander-in-Chief ascribes the foremost place to the evidently whole-hearted acceptance by all ranks of the principles of wholesome living in wholesome surroundings so long urged by those whose technical knowledge made it clear that radical changes were necessary. In no sphere of activity are greater changes for the general good noted than in that of cantonment administration, and indirectly much of the present good health of British troops must be credited to the sustained coöperation which is manifest between cantonment magistrates, commanding officers, and the medical officers. The figures quoted warrant the anticipation that the high standard now attained will be improved upon, and that it is not too much to hope for even better returns. The figures for last year relating to the Indian army are not yet available, but the effects of better knowledge and wider activities in the directions of sanitary effort will probably show corresponding reductions in both disease incidence and mortality among the Indian troops.

Station Hospitals for Indian Troops.

A committee comprising Surgeon-General C. P. Lukis, C.S.I., Director-General of the Indian Medical Service, as President; Lieutenant-Colonel W. A. Morris, R.A.M.C., commanding the Station Hospital at Cawnpore; Lieutenant-Colonel C. M. Moore, I.M.S., and Major Jay Gould, I.M.S., as members, has been appointed by the Government of India to meet at Simla to consider the possibility of converting the present regimental hospital system of the native army into a station hospital organisation somewhat on the lines at present existing under the Royal Army Medical Corps in the case of the British Army. Major Bruce G. Seton, I.M.S., Secretary to the Director-General of the Indian Medical Service, has been selected to act as secretary of the committee.

July 9th.

FOREIGN UNIVERSITY INTELLIGENCE.—*Algeria:* Dr. Curtillet has been appointed Professor of Clinical Surgery and Orthopædics.—*Athens:* Professor M. Sternberg of Vienna has been offered the Chair of Children's Diseases.—*Berlin:* Dr. Olshausen, who is retiring from the Chair of Midwifery and Gynæcology, has been granted a patent of nobility.—*Bordeaux:* Dr. Lagrange, *agrégé*, has been appointed Professor of Clinical Ophthalmology in succession to Dr. Badal. Dr. Auché, *agrégé*, has been appointed Professor of Hygiene in succession to Dr. Layet. Dr. Petges and Dr. Carles have been appointed (after *concours*) *agrégés* of General Medicine.—*Budapest:* Dr. M. Pauncz has been recognised as *privat-docent* of Laryngology and Otology, Dr. O. Ranschburg as *privat-docent* of Psychiatry, Dr. Z. Lénárt as *privat-docent* of Laryngology, and Dr. B. Alexander as *privat-docent* of Radiology.—*Gratz:* Dr. H. Pfeiffer, *privat-docent* of Forensic Medicine, and Dr. T. Pfeiffer, *privat-docent* of Medicine, have been promoted to Extraordinary Professorships.—*Lille:* Dr. Lambret has been appointed Adjunct Professor of Clinical Surgery, and Dr. Deléarde Adjunct Professor of Clinical Medicine, of Children's Diseases, and of Infantile Syphilis. Dr. Minet has been appointed (after *concours*) *agrégé* of General Medicine.—*Lyons:* Dr. Cade, Dr. Mouriquand, and Dr. Arloing have been appointed (after *concours*) *agrégés* of General Medicine.—*Montpellier:* Dr. Euzière has been appointed (after *concours*) *agrégé* of General Medicine.—*Nancy:* Dr. Hoche, *agrégé*, has been appointed Professor of Pathological Anatomy. Dr. Perrin has been appointed (after *concours*) *agrégé* of General Medicine.—*Paris:* Dr. Marfan, *agrégé*, has been appointed Professor of Therapeutics in succession to Dr. A. Gilbert. Dr. G. Ch. Guillain, Dr. Leon Bernard, Dr. Léri, Dr. Gougerot, and Dr. Rathery have been appointed (after *concours*) *agrégés* of General Medicine.—*Pisa:* Dr. Giuseppe Tusini has been appointed Ordinary Professor of Pathology.

Obituary.

GEORGE DANFORD THOMAS, M.R.C.S. ENG., M.D.,

CORONER FOR CENTRAL LONDON.

THE public have lost a valuable servant and the medical profession a distinguished member by the death of Dr. George Danford Thomas, the well-known coroner for Central London, which occurred on Friday last, August 5th, at Hastings, where he had gone to spend a brief holiday in the hope that he would benefit by the rest and change. He was 63 years of age and failed in health suddenly about five years ago, but he rallied from the attack and was able to resume his duties. Latterly, having been again unwell, he had gone to stay at his sister's residence in Hastings, and there he died, the end coming somewhat unexpectedly.

Dr. Danford Thomas received his medical education at St. Mary's Hospital, obtaining the M.R.C.S. Eng. in 1871. He was one of a large family and maintained himself in his student days by acting as an assistant to two well-known general practitioners in Paddington. The experiences of these days led him to found the Medical Students' Union, with offices and rooms, which flourished for some years, until the various medical schools provided common rooms and social requirements for their charges. Five years after qualification he graduated at the University of Brussels with honours in medical jurisprudence, and he had the advantage of a certain amount of legal training, having been a student at the Inner Temple. In these days he would certainly have concluded his legal studies and been called to the Bar, but 30 or 40 years ago, when the contest between medicine and law for the position of coroner was most acute, the solution of a double professional qualification had not been arrived at. He early developed a taste for public work and was the first medical officer of health for Willesden, an appointment which he resigned when he became coroner for the Central London district, an area comprising such large and populous parts as Islington, Clerkenwell, Holborn, St. Pancras, Marylebone, Paddington, Hampstead, and Hornsey. He followed in his scope of duty some distinguished men, for "Central Middlesex," as the district was called before the creation of the London County Council, has been fortunate in its coroners since the days of Thomas Wakley, the Founder of this journal. In the early "seventies" the position was occupied by Dr. Edwin Lankester, F.R.S., the father of Sir E. Ray Lankester, and afterwards by Dr. William Hardwicke, who was succeeded in 1881 by Dr. Danford Thomas, who had acted for several years as the deputy coroner. He was the last of the metropolitan coroners to be elected by the "vote of the freeholders," and the circumstances of his election, surrounded as it was with ancient customs and anomaly, form an interesting note upon municipal ritual. The antiquated formalities entailed costs and an amount of trouble on the candidate that would have seemed out of all proportion to the emoluments of the office if we did not remember that those emoluments were considerable. There was at that time an attempt to recover the post as a prize for the legal profession, from which it had been wrested by Thomas Wakley, who counted it among the triumphs of his energy to have secured this office for the medical profession and to have been the first medical coroner. THE LANCET called upon members of the medical profession to enter into the contest with unwonted alacrity and earnestness and give their support to Dr. Danford Thomas, the deputy of the late Dr. Hardwicke, who was the only medical candidate in the field. A meeting of freeholders was convened to promote the election of Dr. Danford Thomas, with Sir Benjamin Ward Richardson as chairman. How well this succeeded was shown in the result—the return of Dr. Danford Thomas by a majority of votes numbering more than 5 to 1 of those polled for his opponent.

In commenting on the preference in the metropolis for a medical coroner and Dr. Danford Thomas's election, we felt it necessary to state what was expected of him. "We expect, above all things, that the work he has to do will be so done as to bear the criticism of the medical profession. Every week brings us reports and complaints of the perfectly useless and formal way in which inquests are conducted without eliciting any data for an intelligent opinion as to the cause of death. We have a right to expect from a coroner of Dr. Thomas's character, and elected as he has been, that inquests shall be so conducted as to carry the respect of those best able to judge. Where an inquest can be dispensed with, for the sake of friends and human feelings, by all means let it be dispensed with; but when it cannot, let the evidence taken be of the best. It often lies entirely in the discretion of a coroner to select persons to make post-mortem examinations, on the revelations of which the accuracy of the conclusions of the jury entirely depends. He may leave this selection to a subordinate, whose choice may turn upon very irrelevant considerations. This is a duty which should be discharged not by the officer of the coroner, but by himself. On other occasions, too, even medical coroners, for the sake of a little passing popularity, have dispensed with medical evidence altogether, when without it an inquest was an unmeaning farce. We trust Dr. Thomas to avoid such errors." How well Dr. Danford Thomas fulfilled the hopes which the members of his own profession had of him is known to almost every medical man in the central districts of London, for very many of them at one time or another have been before him in their capacity as medical witnesses. Those who have had the opportunity of making a personal judgment can testify to his excellent qualities in the examination of witnesses and the instruction of the jury, and to his unfailing courtesy to the medical profession, whose services he was most punctilious in requiting. His kindly sympathy with the distressed was also shown by the enormous amount of personal time and trouble which he expended in the interests of those whom he learned to be in need or sorrow.

In the course of his 30 years of duty Dr. Danford Thomas is believed, upon an estimate of his own, to have held some 45,000 inquests, and it fell to him to make the preliminary inquiries in many sensational cases of murder—notably, the murders of Mrs. Hogg and her infant by Mrs. Pearcey, of Mr. William Whiteley, the Muswell Hill murder, and the undiscovered crimes in Bernard-street and Whitfield-street, while he had opened the investigation into what are believed to be the remains of Mrs. Crippen. It will be seen, therefore, that he was at work until the very end, and probably he would have better consulted his chances of a long life had he resigned his appointment, but the London County Council appeared to be without the power to grant him a retiring allowance, and owing to his charitable disposition and his belief that he held a life office he preferred to spend his income for the general good of his fellow men, and had therefore little private means. This fact, coupled with his long and unimpeachable public career, no doubt influenced the Lord Chancellor in his decision not to remove him, and we understand that he received from the Lord Chancellor a most sympathetic letter.

Apart from his official duties Dr. Danford Thomas took an active part in political life. He was a Conservative, and contested West Islington in that interest in 1885. He was also interested in medical organisation and education, and on several occasions made contributions to the debates at general meetings of the Royal College of Surgeons of England. As a young man he served with distinction in the post of medical officer to the British National Society for Relief to the Sick and Wounded during the Franco-Prussian War. His interest in military matters did not cease with the conclusion of that war, for he served for many years with the North London Volunteer Rifle Brigade, retiring with the rank of brigade-surgeon-lieutenant-colonel and the Volunteer Decoration.

Dr. Thomas was a strong advocate of the quick dissolution of human remains, whether by cremation or by earth-to-earth burial, and in accordance with his wishes the latter form of burial was carried out at St. Leonards-on-Sea, and the funeral was as quiet as he would have wished it to be. He leaves a widow and one son, Mr. F. Danford Thomas, a barrister and deputy coroner for the City of London.

J. E. PLATT, M.D., M.S. LOND., F.R.C.S. ENG., &C.,

SURGEON TO THE ROYAL INFIRMARY, MANCHESTER.

MANCHESTER has again to lament the death of a distinguished medical man, who has been cut off in his prime when many years of active and useful work might have been looked for. John Edward Platt was born in 1866 at Saddleworth, and about the year 1884 became a student at the Owens College before the amalgamation of the medical school with the University. In 1888 he qualified as M.R.C.S. and

L.R.C.P. In 1891 he became B.S. Lond. and F.R.C.S. Eng., and in 1894 he obtained the M.S. and in 1900 took the degree of M.D. Lond. He was regarded as one of the most brilliant students of the school, and won many academic distinctions, among which were the exhibition and gold medal in anatomy of the University of London and the position of Turner Medical Scholar. After qualifying he soon became connected with the Manchester Royal Infirmary, in which institution he held nearly every surgical position, being appointed in 1900 assistant surgeon to the infirmary on the death, during the war in South Africa, of Professor Tom Jones; while in 1905 he succeeded the late Mr. Joseph Collier as full surgeon. He was a member of the board of management of the infirmary, and at the time of his death was chairman of the medical board. He was lecturer on practical surgery at the Victoria University of Manchester, and his teaching of surgery was closely followed and very highly valued. He was associated with the various medical societies of Manchester, and for many years held the position of honorary secretary to the Manchester Medical Society and did much valuable work to forward its interests. He was also an honorary consulting surgeon to the Manchester Hospital for Consumption, while he held the commission of major in the reserve of officers for the Second Western General Hospital (Territorial Force), in case of mobilisation.

In addition to this far-reaching public work he found time to attend to the claims of an extensive consulting practice. He was an able man of high character, and therefore gained the confidence of his patients in both hospital and private practice; he revelled in hard work and took the keenest interest in every development of his profession. A friend who knew him well speaks of "his gentle, unassuming manners, coupled with firmness of purpose and clearness of view," qualities which won for him "universal respect and the admiration of those with whom he came into contact." Another of his friends, this one a surgical colleague, writes that "as a surgeon his work was mainly characterised by extreme carefulness and attention to detail, the qualities which above all others probably ensured the excellence of his results." Appreciations of his personal worth might easily be multiplied, but we do not think that we should in such a way draw a clearer picture of the valuable career that has thus come to so untimely a close. Those who knew his private life can alone appreciate the quiet courage with which for more than a year he had faced the fate which he himself foresaw. About a year or so ago he underwent an operation rendered necessary by what was probably a malignant growth, and further relief had to be obtained, but unhappily the attempt was not successful. His death, however, came as a shock to very many, for he was at work within a few days of the end.

His funeral, which took place on Saturday last at St. Paul's, Kersal, was attended by a large concourse of his colleagues of the University and the Royal Infirmary, by members of the governing bodies, by numbers of friends of his own profession, and by many of his infirmary patients. Deep sympathy is felt for the widow and the three young children who are left.

WILLIAM BERRY, F.R.C.S. IREL., D.P.H., &c.

MEDICAL OFFICER OF HEALTH OF WIGAN.

WE regret to report the death of Mr. William Berry, medical officer of health of the county borough of Wigan and honorary surgeon to the Royal Albert Edward Infirmary. Mr. Berry had been in indifferent health for several years, but the end came with startling suddenness on July 29th. Two days previously he had spent the day with friends in the Lake District, and appears to have contracted a chill. This was followed by pneumonia, and the attack proved rapidly fatal.

Mr. Berry was a native of Wigan, and commenced practice in that town in 1874. In 1880, a vacancy occurring on the infirmary staff, he was elected thereto. He was a careful and skilful surgeon, and acquired a high reputation in the neighbourhood for his dexterity in abdominal surgery. In 1895 he was appointed medical officer of health of Wigan, and for the past ten years had devoted himself largely to public health work. This department in the borough he developed to a high state of efficiency. His reports were always valuable contributions to sanitary science. In 1898 Mr. Berry was elected President of the Lancashire and Cheshire Branch of the British Medical Association, and for many years was an active member of the branch council. He was a J.P. for the borough and ex-President of the Wigan Medical Society. He was also a frequent and valued contributor, particularly upon public health topics, to the columns of THE LANCET.

The funeral took place on August 2nd, and was attended by almost all his professional brethren in the district, the alderman and members of the town council, the borough magistrates, corporation, and other officials. Mr. Berry was twice married, but had been a widower for some years. He leaves three sons and three daughters, two of the former being members of the medical profession.

HENRY SANDFORD JOHNSON, M.R.C.P. IREL., L.F.P.S. GLASG.

Mr. H. S. Johnson, who died at his residence, "Rushbrook," Totnes, Devon, on August 3rd, had been for many years in practice at Totnes, had held several public appointments, and was in every way a prominent citizen. He was on the honorary staff of the Totnes Cottage Hospital, and at the time of his death was medical officer of health for the Totnes rural district council and also for the Ashburton urban district council. He took a great interest in the town of Totnes, and was at different times a member of the town council and of the Buckfastleigh district council. Outside his public and professional interests he was a keen sportsman, formerly captain of the Dart Rowing Club, and president of the local Rugby football team, while his horses were frequent competitors at the local race meetings. He was also chairman of the Totnes Unionist committee, so that it can be easily understood that on public and private grounds alike his death is felt in the neighbourhood as a severe loss.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced: Dr. Ferdinand Plehn, who for many years practised as an ophthalmic surgeon in Paris. His hobby, which he was able to follow out since his retirement to Steglitz, was astronomy, in which subject he was no mean proficient.—Dr. Tiburtius, a well-known Berlin practitioner whose books written in platt-deutsch are recognised as having considerable literary value.

THE OXFORD OPHTHALMOLOGICAL CONGRESS.—The Oxford Ophthalmological Congress assembled at Keble College on July 21st and 22nd. The meeting was well attended, and several foreign guests and members were present, including Professor Lagrange (Bordeaux), Professor Holth (Christiania), Professor Heine (Kiel), Professor Stanculeanu (Bucharest), and Professor Remy (Dijon). Professor W. Osler delivered the opening address on the morning of the 21st. He was followed by Professor Arthur Thomson, who demonstrated and illustrated by lantern slides a structure which he had observed to lie at the sclero-corneal junction around the circumference of the anterior chamber of the eye. To this groove he has given the name, "sulcus circularis corneæ." Dr. J Mackenzie Davidson and Professor Holth next demonstrated their methods of Localising Foreign Bodies in the Eye by means of X rays. The afternoon of July 21st was devoted to the demonstration of operations by Sir Anderson Critchett, Professor Lagrange, Professor Heine, and Mr. R. W. Doyne. In the evening the inaugural dinner of the Congress took place in Keble College Hall. The chair was occupied by Sir Anderson Critchett, who was supported by Mr. Doyne (master of the Congress), Professor Osler (Regius professor of medicine), Professor Arthur Thomson (professor of anatomy), Mr. Charles Higgens (President of the Section of Ophthalmology, British Medical Association), Mr. Sydney Stephenson (honorary secretary of the Congress), together with a number of distinguished ophthalmic surgeons, numbering about one hundred. The chief guest was Dr. T. H. Warren, D.C.L., Vice-Chancellor of the University of Oxford. In replying to the toast of his health, proposed by Sir Anderson Critchett, the Vice-Chancellor extended a hearty welcome to the members of the Congress. He spoke of the growth of the medical school under the guidance and influence of Sir Henry Acland, Sir John Burdon-Sanderson, and Professor Osler. It had again taken a lead in establishing a diploma in ophthalmology, the examinations for which had just ended. The Vice-Chancellor was in favour of the granting of other special diplomas in special branches of medicine and surgery should the need for such be made out.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At a meeting of the Council of the Royal College of Surgeons of England on July 25th, and of the Comitia of the Royal College of Physicians of London on July 28th, Diplomas of Member and Licences to practise were respectively conferred upon the undermentioned gentlemen, who have passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Examining Board, and have complied with the necessary by-laws:—

Edwin Augustus Attenborough and Gerald Waddington Beresford, London Hospital; Claude Alexander Birts, University College Hospital; Julius Gottlob Blechschmidt, Jefferson Medical College and Guy's Hospital; William Stanley Boothman, Manchester University; Richard Frederick Butlin Bowes, B.A. Oxon., Oxford University and St. Thomas's Hospital; Stanley Eric Vincent Brown, M.B., Ch.B. New Zealand, New Zealand University and London Hospital; John Capell, St. Bartholomew's Hospital; Richard Christopher Clarke, Bristol University; *Robert Edward Collins, M.B., Ch.B. Edin., Edinburgh University; Edward George Huxley Cowen, Charing Cross Hospital; Frank Elton Cox, M.B., B.S. Melb., Melbourne University and St. Bartholomew's Hospital; Thomas Ronald Davey, St. Mary's Hospital; Frederick Adolph Dick and Henry William Doll, Guy's Hospital; Robert Drummond, Glasgow University and University College Hospital; Edwin Charles East, Birmingham University; John Adamson Edmond and Frederick Charles Endean, Guy's Hospital; Bertie Cecil Eskell, Bristol University and Middlesex Hospital; Walter Andrew Fernando, Ceylon Medical College and University College Hospital; Charles Joshua Fox, Charing Cross Hospital; Archibald Louis George, L.D.S. Eng., Guy's Hospital; Erach Pestonji Ghadiala, L.M. & S. Bombay, Bombay University and King's College and Middlesex Hospitals; Charles Gibson, London Hospital; Archibald John Gilchrist, M.B. Toronto, Toronto University and London Hospital; Bernard Goldsmith, L.D.S. Eng., Middlesex Hospital; Alfred Hope Gosse, M.A. Cantab., Cambridge University and St. Mary's Hospital; Charles D'Oyly Grange, Leeds University and St. Bartholomew's Hospital; Henry Edwardes Griffiths, Cardiff and King's College Hospital; Benjamin Herald, Manchester University; Sydney James Higgins, B.A. Cantab., Cambridge University and London Hospital; Reginald Melville Hiley, Bristol University and King's College Hospital; John Brook Henderson Holroyd, Sheffield University; William Henry Hooton, Leeds University; Arthur Noel Houghton, M.B., Ch.B. New Zealand, New Zealand University; *Cecil Augustus Joll, M.B., B.S. Lond., B.Sc. Lond., F.R.C.S. Eng., L.D.S. Eng., Bristol University; *Arthur Rocyn Jones, University College, Cardiff, and University College Hospital; Mirza Mohammed Khan, University College Hospital; Walter Shirley Kidd, Guy's Hospital; Charles Haley Knowles, Leeds University; Weston Krupp, M.B. Toronto, Toronto University and London Hospital; Andrew Bonar Lindsay, New Zealand University and London Hospital; James Parkinson Lupton, St. Thomas's Hospital; †William Macewen, M.B., Ch.B. Glasg., Glasgow University and Charing Cross Hospital; Colin McIver, Madras University and University College Hospital; Patrick Andrew Mackay, Glasgow University and St. Mary's Hospital; John Charsley Mackwood, London Hospital; John Roy McRae, M.D., C.M. Trinity University, Toronto, St. Bartholomew's and Middlesex Hospitals; Horace Lloyd Mann, St. Thomas's Hospital; Henry Linnington Martyn, King's College Hospital; Guy Matthews, King's College Hospital; Thomas Clarkson Maxwell, St. Bartholomew's and Charing Cross Hospitals; Arthur Oscar Mitchell, Westminster Hospital; Charles Gordon Holland Moore, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Adrian Leonard Moreton, St. Bartholomew's Hospital; Arthur Morgan, Cambridge University and Charing Cross Hospital; *Damodar Narayenswamy Mudliar, Bombay and Manchester Universities and University College Hospital; Humphrey Neame and Hubert Lewis Clifford Noel, London Hospital; Robert Sydney Overton and Adrian Charles Paterson, St. Thomas's Hospital; Edward Austen Penny, Guy's Hospital; John Frederick Penson, B.A. Oxon., Oxford University and London Hospital; Alfred Spearman Pern, St. Thomas's Hospital; Edward Palmer Poulton, B.A. Oxon., Oxford University and Guy's Hospital; Leslie Powell, Cambridge University and London Hospital; ‡Ernest Arthur Ramsden, Oxford University and Charing Cross Hospital; Srikantal Subba Rao, M.B. Madras, Madras University and University College Hospital; Alfred Henry Richardson, M.A. Cantab., Cambridge University and St. Thomas's Hospital; Cecil George Richardson, Westminster Hospital; Arthur Stanley Roe, B.A. Oxon., Oxford University and Guy's Hospital; Alec Linford Saul, L.D.S. Eng., Guy's Hospital; Charles Frank Schuler, St. Thomas's Hospital; Sumner Hugh Smith, King's College Hospital; Ralph Martin Soames, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; William Boys Stones, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Robert Stout, Guy's Hospital; Frans Karel te Water, M.B., Ch.B. Edin., Edinburgh University; Harold William Tilling, Charing Cross Hospital; Richard Herbert Vercoe, B.A. Cantab., Cambridge University and University College Hospital; Harvey Henry Vincent Welch, St. Thomas's Hospital; Arthur John Ormsby Wigmore, Bristol University; William Stanley Wildman, London Hospital; Frederic Jeune Willans, Durham University and London Hospital; Arthur Donald John Bedward Williams, B.A. Cantab., Cambridge University and Guy's Hospital; Walter Frederick Wise, Middlesex Hospital; and Charles Woollard, M.D. Manitoba, Manitoba University and London Hospital.

* M.R.C.S. diploma granted previously.
† M.R.C.S. diploma not yet granted.

Diplomas in Public Health were conferred upon the following 24 candidates:—

Alec Barber, M.B., B.S. Lond., M.R.C.S., L.R.C.P., St. Bartholomew's Hospital and University College; Thomas David Collis Barry, Lieutenant-Colonel I.M.S., M.R.C.S., L.R.C.P. Irel., Liverpool University, University College, and Middlesex Hospital; Kul Bhushan, L.R.C.P. & S. Edin., L.F.P.S. Glasg., Edinburgh University and University College; Robert Cameron, M.D., Ch.B. Edin., Edinburgh University and Cardiff; William Henry Cazaly, Captain I.M.S., M.B., B.S. Lond., M.R.C.S., L.R.C.P., Netley and St. Bartholomew's Hospital; John Thomson Clark, M.B., Ch.B. Glasg., Glasgow University and Guy's Hospital; James Kilian Patrick Clarke, M.B., B.Ch. R.U.I., Dublin University and University College; James Crawford Craig, M.B., Ch.B. Edin., Edinburgh University and University College; John Findlay, M.B., Ch.B. Edin., Edinburgh University and University College; John Neville Griffiths, M.B. Sydney, Sydney University and University College; Arthur Herbert Hayes, Captain R.A.M.C., M.R.C.P., M.R.C.S., St. Bartholomew's Hospital and Royal Army Medical College; Henry Holroyd, M.B., B.S. Lond., Middlesex Hospital; Shivax Kaikhosro Nowroji Kabraji, L.M. & S. Bombay, Bombay University and Royal Institute of Public Health; Robert Craske Leaning, M.B., B.S. Lond., M.R.C.S., L.R.C.P., St. Mary's and St. George's Hospitals; Helen Nora Payne, M.D., B.S. Lond., Royal Free and Middlesex Hospitals; John Rose, M.B., Ch.B. Aberd., Aberdeen University and University College; Erach Dinshaw Shroff, L.R.C.P. & S. Edin., L.F.P.S. Glasg., Edinburgh University and University College; Alfred Christopher Herman Suhr, M.B., B.C. Cantab., M.R.C.S., L.R.C.P., Cambridge University, St. Thomas's Hospital, and Royal Army Medical College; Chandiprasad Trivedi, L.R.C.P. & S. Edin., L.F.P.S. Glasg., Edinburgh University and University College; Alfred Charles Foster Turner, M.B., B.S. Lond., St. Thomas's Hospital, Birmingham University, and Royal Institute of Public Health; Alice Mauricia Van Ingen, L.M. & S. Madras, L.S.A., M.D. Brux., Royal Free Hospital and University College; Joseph Walker, M.D., Ch.B. Glasg., Glasgow University and University College; Hilda Kate Whittingham, M.B., B.S. Lond., Royal Free and Middlesex Hospitals; and Alfred Carleton Williams, M.R.C.S., L.R.C.P., King's and University Colleges.

UNIVERSITY OF OXFORD.—In the recent examination for the Diploma in Ophthalmology the following candidates were approved:—

P. E. H. Adams, Exeter; M. E. D. Allen, J. Burden-Cooper, A. B. Cridland, E. J. Curran, H. A. J. Gidney, F. A. Newman, S. Stephenson, and R. G. Waddy.

UNIVERSITY OF LONDON.—At examinations for medical degrees held in July the following candidates were successful:—

FIRST EXAMINATION.

Arthur Wilfrid Adams, University of Bristol; ‡B. Pulvermacher Allinson, University College; Donald Aucutt, King's College; Augustus Rollo Balmain, University Tutorial College and private study; Herbert Edward Bamber, Worcester College, Oxford, and University Tutorial College; *Gregory Lawson Barnes, St. Bartholomew's Hospital; Stanley Batchelor, London Hospital; †Maurice Senior Beaumont, Epsom College; Christian Frederick Beyers and Douglas Arthur Blount, St. Bartholomew's Hospital; *Arthur Leslie Blunt, St. Thomas's Hospital; Margaret Stote Glen Bott, University of Liverpool; Frederick Hubert Bray, London Hospital; Maurice Charles Breese, King's College and Westminster Hospital; Cyril Mary Brophy, University College; John Edward Clark, Guy's Hospital; Lilian Annie Clark, City of London School for Girls; Mabel Campbell Clark, University College; Philip Cyril Powter Cloake, B.Sc., London Hospital; William Edward Kyte Coles, University of Edinburgh and private tuition; *Clement Cooke, St. Bartholomew's Hospital; Cyril John Chesterfield Cooke, Derby Technical College; Albert William Abell Davies, Guy's Hospital; Peter Gerald Stevenson Davis, St. Thomas's Hospital; Alexander Decimus d'Avray, University College; John Nissen Deacon, Epsom College; Grace Mary Denham, London (Royal Free Hospital) School of Medicine for Women; Cedric Rowland Denny, London Hospital; Robert William D. Calladine Easom, Guy's Hospital; John Alfred Wylde Ebden, King's College and private tuition; Harold Ellis, University College, Cardiff; ‡James Fanstone and Israel Feldman, London Hospital; Hugo Rudolph Friedlander, St. Thomas's Hospital; Douglas Hugh Aird Galbraith, Guy's Hospital; Edmund Douglas Granger, St. Thomas's Hospital; Arthur Edwards Gravelle, University College, Cardiff; Herbert Stuart Griffith, St. Bartholomew's Hospital; Grace Mary Gulston and *‡Ernest Frederick Guy, University College, Cardiff; Stanley Allman Hall, private study; Francis Joseph Hallinan, Charing Cross Hospital; †Norah Hamill, London (Royal Free Hospital) School of Medicine for Women; Ranald M. Handfield-Jones, Epsom College; Arthur Geoffrey P. Hardwick, London Hospital; Cyril Edward Harrison, Middlesex Hospital and Walthamstow Technical Institution; Jessie Eva Hart, London (Royal Free Hospital) School of Medicine for Women; Frank Keith Hayman, University of Bristol; Henry Francis Thomas Hogben, Guy's Hospital; William Andrew Hotson, King's College and Westminster Hospital; William Vincent Hughes, St. Bartholomew's Hospital; Ronald Nelson Hunter, London Hospital; George Maudsley Jackson, University of Bristol; Llewellyn Price Johns, King's College; Hilda Grace Johnson, London (Royal Free Hospital) School of Medicine for Women; Mary Emmeline Joll, University of Bristol; Cyril Oscar Howe Jones, Middlesex Hospital; Rhys Trevor Jones, University College, Cardiff; Samuel Walter Jones, Middlesex Hospital; Thomas Anstey Jones, University College, Cardiff; Guy Melville Kendall, Epsom College; Nicholas Edward Kendall, Guy's Hospital; Robert Kerr, B.Sc., University of Leeds and private tuition; James Kyle, William Morris Lansdale, Ernest Alfred Leviseur, and Herbert John Leviseur, Guy's Hospital; *‡Geoffry Challen Linder, St. Bartholomew's Hospital; Edward Richardson Lovell, Middlesex Hospital; ‡Helen Marion M. Mackay, London (Royal Free Hospital) School of Medicine for Women; Showkiram S. Malkani, University Tutorial College and University College; Philip Sydney Marshall, University College; Alexander Menzies and Duncan

Menzies, St. Mary's Hospital; Vivian Mercer Métivier, St. Bartholomew's Hospital; Desmond G. Fitzgerald Moore, Bedford Grammar School; John Branwell Mudge, St. Bartholomew's Hospital; Violet Newmarch, London (Royal Free Hospital) School of Medicine for Women; ‡William Howard Nicholls, Brighton Municipal Technical College; Kathleen Hazel Parkinson, London (Royal Free Hospital) School of Medicine for Women; Owen Parry-Jones, London Hospital; Margaret Russell Paterson, London (Royal Free Hospital) School of Medicine for Women; Arthur Henry Pemberton, University College; Alan Cecil Perry, London Hospital; Leslie Ellis Pimm, Victoria Tutorial College; Mary Constance Poonen, London (Royal Free Hospital) School of Medicine for Women; Charles Leslie Grove Powell, St. Thomas's Hospital; Arthur Lisle Punch and Kenneth Noel Purkis, Guy's Hospital; John Bromley Rawlins, St. Mary's Hospital; Violet Ione Russell, London (Royal Free Hospital) School of Medicine for Women; Pinthu Sal, St. Thomas's Hospital; Basil Sampson, Guy's Hospital; Eric Arthur Langford Sansom, University College; Saroz Kumar Sanyal, London Hospital; Farid Henein Abdel Sayed and James Ernest Scanlan, St. Mary's Hospital; †Hilda Mary Scarborough, London (Royal Free Hospital) School of Medicine for Women; Clive Justin Hicks Sharp, University College; Edith Annie Shaw, London (Royal Free Hospital) School of Medicine for Women; Bertram Baber Silcock, University Tutorial College; Alfred George Simmins, Guy's Hospital; John Frank Herbert Stallman, Dulwich College and Guy's Hospital; John Greet Stevens, Guy's Hospital; Thomas Collyer Summers, Coopers' Company's School and King's College; Godfrey Trehane Symons, King's College; Edward Willett Tait, St. Bartholomew's Hospital; *William Edward Tanner, Guy's Hospital; Douglas George Clutsam Tasker, University of Bristol; Leonard Hankinson Terry, St. Bartholomew's Hospital; John Oscar Thomas, King's College; Ralph Reakes Thompson, London Hospital; Harry Cecil Craven Veitch, University College; Geoffrey Marr Vevers, St. Thomas's Hospital; Katharine Ada Waring, University College, Aberystwyth; Cyril James Berkeley Way, William Ellis Endowed School and University Tutorial College; Hugh Wearne, Epsom College; Cyril Mathias Williams, University College, Cardiff, and University Tutorial College; Leslie Herbert Worthy Williams, University College, Cardiff; Harold Williamson, Charing Cross Hospital; James Montagu Wyatt, St. Thomas's Hospital; and Cecil Fewster Boynton Wyborn, Middlesex Hospital.

* Awarded a mark of distinction in Inorganic Chemistry.
† Awarded a mark of distinction in Physics.
‡ Awarded a mark of distinction in General Biology.

The following students who took a portion of the examination under Old Regulations have now completed it:—

John William Heekes, Charing Cross Hospital; and John Alexander Pridham, St. Bartholomew's Hospital.

SECOND EXAMINATION.

Part I., Organic and Applied Chemistry.—Herbert Archer, University Tutorial College; Thomas David Collis Barry, University of Liverpool; *Geoffrey Andrew Bird, St. Thomas's Hospital; Ursula Poussett Blackwell, London (Royal Free Hospital) School of Medicine for Women; William Roy Blore, Victoria University of Manchester; John Prichard Bracken, University College; Owen Deane Brownfield, St. Thomas's Hospital; Isabel Florence Buckle and Gwendolyn Margaret Burns, London (Royal Free Hospital) School of Medicine for Women; Marion Mildred Barrow Burt, University of Birmingham; Noel St. John G. Dudley Buxton, University College; F. Wyndham Chamberlain, Middlesex Hospital; Ying-Jue Cieh, King's College; Richard Challoner Cobbe Clay, King's College and private study; Donald Murray Connan, King's College; Meherjibhoy Bomanji Cooper, University College; Frederick Hugh L. Cunningham, St. Bartholomew's Hospital; John Horace Dancy, King's College; Thomas William David, University College, Cardiff; Richard Feltrim Fagan, University College; Victor Feldman, London Hospital; Joseph Fielding, Victoria University of Manchester; Frank Brayshaw Gilbespy, University College; Samuel Lionel Green, Stonyhurst College; Henry Little Hardy Greer, St. Bartholomew's Hospital and Queen's University, Belfast; David William Griffith and Hugh Ernest Griffiths, University College, Cardiff; Alec George Holman, London Hospital; Sydney Colin W. Iredale, St. Bartholomew's Hospital; Arthur Maddock Jones, Charing Cross Hospital; William Arthur Edward Karunaratne, University College; Geoffrey T. Loughborough, St. Bartholomew's Hospital; Robert John McNeill Love, London Hospital; William Francis MacAlevey, St. Mary's Hospital; Hugh James McCurrich, University of Bristol; Owen Sidney Martin, University College; Arthur Daniel Morris, University College, Cardiff; Thomas Bond Paul, Middlesex Hospital; John Ernest Pearce, St. Bartholomew's Hospital; Innes Hope Pearse, London (Royal Free Hospital) School of Medicine for Women; Frederick Tavinor Rees, University College, Cardiff; William Leonard Eliot Reynolds, Guy's Hospital; Robert Edward Roberts, University of Liverpool; *Gordon Wilfrid R. Rudkin and Eric Arnold Scott, University College; Philip Dennis Scott, Guy's Hospital; John Hunter Sewart, University College; William Goodman Shakespeare, King's College; Edith Grace Sherwood, London (Royal Free Hospital) School of Medicine for Women; Hector Smith, Charing Cross Hospital; Henry James Drew Smythe, University of Bristol; Joseph Bulmer Thackeray, London Hospital; Humphrey Q. F. Thompson, Guy's Hospital; Harold Vickers, St. Mary's Hospital; *William Leslie Webb and Henry Parks Whitworth, Guy's Hospital; Frederick Edward Saxby Willis, St. Bartholomew's Hospital; Maurice Ulick Wilson, King's College; William Pridham Wippell, St. Bartholomew's Hospital; and Siong Yew Wong, St. Thomas's Hospital.

* Awarded a mark of distinction.

Part II.—*†Walter Martin Ash, London Hospital; Vicente Atienza, Guy's Hospital; Mabel Kate Bishopp, London (Royal Free Hospital) School of Medicine for Women; Raymond Brewitt-Taylor, St. Bartholomew's Hospital; Noel Hawley Michael Burke, King's College; Frederick William Theodore Clemens, University of Bristol; Rolf Creasy, Guy's Hospital; Michael Joseph Cronin, London Hospital; Lionel Gordon Crossman, University College, Cardiff; ‡Francis Eldon Daunt, St. Thomas's Hospital; John Prosser Davies, University College, Cardiff; Lionel Alfred Dingley, University College; Robert Joel Cazalet Douty, Middlesex Hospital; Victor William Draper, B.Sc., King's College; William Henry Edmunds, University College, Cardiff; *Andrew Royston Elliott, London Hospital; Pattie Ruth Elliott, London (Royal Free Hospital) School of Medicine for Women; Thomas Leslie Ellis, University College, Cardiff; Abraham Solomon Erulkar, Guy's Hospital; Herbert Thomas Evans, King's College; Aubrey George Clifton Findlay, University College; Frank Rex Fletcher, London Hospital; Gertrude May Flumerfelt and Katherine Mary Lovell Gamgee, London (Royal Free Hospital) School of Medicine for Women; Edward Alexander Marie J. Goldie and Aubrey Goodwin, University College; Frank Arthur Grange, London Hospital; Philip Withers Green, St. Mary's Hospital; Cyril James Anthony Griffin, University College; Malcolm Gross, King's College and Westminster Hospital; Alfred Ernest Hallinan, Charing Cross Hospital; Reginald Simpson Harvey, University of Leeds; George Murray Heiron, Philip Henry Henson, and Melville Hocken, London Hospital; James Moncrieff Joly, Guy's Hospital; Thomas Pomfret Kilner, Victoria University of Manchester; Leslie Mordaunt Ladell, London Hospital; Thomas Percy Lewis, St. Mary's Hospital; Muriel Annie Lloyd, London (Royal Free Hospital) School of Medicine for Women; James Duncan Lyle, London Hospital; Gerald Roche Lynch, St. Mary's Hospital; †Fede Margherita Mackenzie, London (Royal Free Hospital) School of Medicine for Women; ‡Charles Jennings Marshall, University College, Cardiff; *Lionel Arthur Martin and Pestanji Manekji Másiná, University College; William Matthews, Guy's Hospital; *Jivraj Narayan Mehta, Grant Medical College, Bombay, and London Hospital; †Harold Leonard Meyer and Alexander Geo. Hains Moore, Guy's Hospital; *Donald Ewart Morley, London Hospital; Ernest Mannering Morris, Charing Cross Hospital; Edith Mary Nesbitt Moss, London (Royal Free Hospital) School of Medicine for Women; William David Owen, University College, Cardiff, and St. Bartholomew's Hospital; Richard Douglas Passey, Guy's Hospital; Purushottam Tulsidas Patel, Grant Medical College, Bombay, and London Hospital; Gwilym Rhys Pennant, University College, Cardiff; Edna Mary Powell, London (Royal Free Hospital) School of Medicine for Women; John Beaufoy Randall, St. Bartholomew's Hospital; Leslie Norman Reece and George Henry Roberts, St. Thomas's Hospital; James Ewen Robertson-Ross, King's College and Westminster Hospital; John Alfred Ryle, Guy's Hospital; William Barwise Sanders, University College; Arthur Richard Sharrod and William Geoffrey Shaw, London Hospital; Cyril Sherris and Arthur Joseph Eagleton Smith, Guy's Hospital; Sidney Smith, King's College; William Henry Dakin Smith, University College; Ernest Nedwons Snowden, St. Bartholomew's Hospital; James Lennox Stewart, Guy's Hospital; Agnes Priscilla Taylor, London (Royal Free Hospital) School of Medicine for Women; ‡James Robert Karran Thomson, London Hospital; Charles Edgar Thornton, Middlesex Hospital; Joseph Alexander Tsoi-A-Sue, London Hospital; Thomas Burdock Vale, St. Bartholomew's Hospital; John Richard Menzies Whigham, St. Mary's Hospital; Aubrey Harrison White, University of Bristol; Cecil Leonard Williams, St. Bartholomew's Hospital; Alfred Willis, Guy's Hospital; ‡Alan Wilson, University College; Arthur Wai-tak Woo, London Hospital; and William Arthur Young, Guy's Hospital.

* Distinguished in Anatomy. † Distinguished in Physiology.
‡ Distinguished in Pharmacology.

N.B.—This list, published for the convenience of candidates, is issued subject to its approval by the Senate.

UNIVERSITY OF DURHAM.—At a Convocation held on July 23rd the following degrees were conferred:—

Doctor of Medicine (Essay).—Neville Avory Eddlestone, Herbert Max Levinson, Richard Oswald Mather, Herbert Richard McAleenan, Robert Reid Pirrie, Stanley Robson, Andrew Smith, and James Wilkie Smith.

Degree of Doctor of Medicine for Practitioners of 15 Years' Standing.—Walter Whitmarsh Bell, Henry Collier, Henry Hugh Powell Cotton, William Burwell Darroll, and Walter Herbert Hargreaves.

Degree of Master of Surgery (M.S.).—Herbert Max Levinson and Stanley Robson.

Degree of Bachelor of Medicine (M.B.).—Isaac Bainbridge, John Akilade Caulcrick, Helen Grace Clark, and Robert Vickers Clayton, College of Medicine, Newcastle-upon-Tyne; Sebert Francis St. Davids Green, M.R.C.S., L.R.C.P., St. Bartholomew's Hospital; John Hare, Samuel Littlewood, Eva Lumb, and George Cuthbert Mura M'Gonigle, College of Medicine, Newcastle-upon-Tyne; Charles Elias Reindorf, College of Medicine, Newcastle-upon-Tyne, and St. Bartholomew's Hospital; and Eric Hemingway Shaw, Stanley Worthington, and James Carruthers Young, College of Medicine, Newcastle-upon-Tyne.

Degree of Bachelor of Surgery (B.S.).—Isaac Bainbridge, Helen Grace Clark, Robert Vickers Clayton, John Hare, Samuel Littlewood, Eva Lumb, and George Cuthbert Mura M'Gonigle, College of Medicine, Newcastle-upon-Tyne; Charlias Elias Reindorf, College of Medicine, Newcastle-upon-Tyne, and St. Bartholomew's Hospital; and Eric Hemingway Shaw, Stanley Worthington, and James Carruthers Young, College of Medicine, Newcastle-upon-Tyne.

Degree of Bachelor of Hygiene (B.Hy.).—William George Thomas Hepplewhite and Friederike Rahtkens.

Diplomas in Public Health (D.P.H.) were granted to the following:—

William George Thomas Hepplewhite, Sophia Bangham Jackson, Kaikhosru Jamset, John Alexander Neilan, Friederike Rahtkens, and Henry Martyn Stumbles.

QUEEN'S UNIVERSITY, BELFAST.—At examinations held recently the following candidates were successful in the subjects mentioned:—

FIRST MEDICAL EXAMINATION.

Physics, Chemistry, Zoology, and Botany.—W. K. Campbell, A. Fullerton (honours), C. M'N. M'Cormack, E. B. C. Mayrs (honours

and first scholarship), G. R. B. Purce (honours and fourth scholarship), Eliz. M. Robb, James Tate (honours and second scholarship), and Owen Wilson (honours and third scholarship).

Physics.—W. K. Campbell, A. Fullerton, C. M'N. M'Cormack, E. B. C. Mayrs, Herbert Moore, George R. B. Purce, Eliz. M. Robb, James Tate, and Owen Wilson.

Chemistry.—Alfred Black, R. G. Blair, W. K. Campbell, H. M. Coulter, F. J. Devlin, Edmond Doherty, John Duffin, A. Fullerton, Margaret Gorman, Thomas Grimson, W. H. Hardy, W. S. B. Hay, Mary M. Keirns, John J. Kerr, Beattie Lyons, C. M'N. M'Cormack, J. M. M'Cormack, W. T. M'Curry, J. R. M. Mackenzie, F. M'Kibbin, Robert N. M'Kinistry, Terence P. M'Quaid, E. A. Mallon, E. B. C. Mayrs, John O'Connor, G. R. B. Purce, George W. Rea, Eliz. M. Robb, John C. Robb, John S. Savage, A. F. L. Shiels, F. A. E. Silcock, F. G. Smyth, J. Tate, O. Wilson, and P. P. Wright.

Zoology.—S. T. Alexander, A. W. Bourke, W. K. Campbell, A. E. M. Carleton, J. W. Carson, H. T. Chatfield, W. M'N. Chesney, R. Coudy, H. M. Coulter, J. Cullenan, C. F. Davey, W. W. Dickson, J. W. Donald, A. Fullerton, D. Gaston, M. Gilligan, G. Gordon, C. C. Humphries, J. F. D. Hunter, D. Jamison, Mary M. Keirns, William J. Lascelles, C. M'N. M'Cormack, J. M. M'Cormack, J. M'Kay, J. R. M. Mackenzie, H. F. M'Nally, E. B. C. Mayrs, Herbert Moore, J. O'Connor, M. G. Paul, G. R. B. Purce, Eliz. M. Robb, William Russell, James Smyth, J. K. Stewart, James Tate, D. B. L. Walker, Denis Watterson, N. W. F. Wheeler, Owen Wilson, R. H. Wilson, W. R. E. Wilson, and A. A. Woods.

Botany.—R. G. Blair, Albert W. Bourke, W. K. Campbell, W. J. Carson, H. T. Chatfield, W. M'N. Chesney, R. Coudy, J. Cullenan, F. J. Devlin, W. W. Dickson, E. Doherty, J. Duffin, A. Fullerton, D. Gaston, M. Gilligan, Margaret Gorman, Thomas Grimson, W. H. Hardy, W. S. B. Hay, J. F. D. Hunter, David Jamison, Mary M. Keirns, William J. Lascelles, B. Lyons, C. M'N. M'Cormac, John M. M'Cormack, W. T. M'Curry, James M'Kay, T. B. M'Kee, F. M'Kibbin, R. N. M'Kinestry, H. F. M'Nally, T. P. M'Quaid, E. A. Mallon, Sylvia Marsh, E. B. C. Mayrs, J. J. Murray, J. O'Connor, M. G. Paul, G. R. B. Purce, G. W. Rea, Eliz. M. Robb, John C. Robb, J. S. Savage, A. F. L. Shields, F. A. E. Silcock, F. G. Smith, James Smyth, J. K. Stewart, J. Tate, D. B. L. Walker, J. C. Wilson, Owen Wilson, R. H. Wilson, W. R. E. Wilson, F. N. Woods, and P. P. Wright.

SECOND MEDICAL EXAMINATION.

Francis L. P. Bennett, W. W. Blair, W. A. L. Dunlop, J. M'K. Ferguson, Stafford Geddis, T. W. G. Hogg, *Gordon D. Latimer, J. B. Lyle, W. J. M'Cracken, J. J. H. Mitchell, Matthew Neilson, †Robert L. Rea, Edith Robinson, ‡Thomas Walker, and Thomas H. Wilson.

* Recommended for Scholarship of £15.
† First Scholarship (£40).
‡ Passed with honours and awarded Second Scholarship (£30).

Physiology.—Thomas M. Adamson, David M. Clements, James E. Finlay, William M'Dermott, E. U. MacWilliam, Samuel E. Picken, and Herbert R. Sinclair.

THIRD MEDICAL EXAMINATION (*Old Regulations*).

Peter A. Clearkin, *T. F. S. Fulton, *Norman B. Graham, and W. M. O'Farrell.

* Passed with honours and recommended for prize of £10.

Anatomy and Physiology.—Henry A. Gillespie, L. D. J. Graham, J. V. Holmes, Hugh A. Skillen, and James R. White.
Anatomy.—George E. Hull.
Materia Medica.—S. Armstrong, S. H. Davidson, J. M. Gibson, J. R. Henry, Frederick Jefferson, Samuel M'Comb, John M'Faddien, R. C. M'Millan, Michael M'Ging, Edward M'Sorley, Ivan W. Magill, and W. M'N. Walker.

THIRD MEDICAL EXAMINATION (*New Regulations*).

W. K. Calwell, *George Cooper, †Frederick Crooks, T. D. Graham, W. S. Haydock, B. C. Letts, W. M. Millar, W. Paul, W. C. Wilson, and F. J. Wiseley.

* Passed with honours and awarded First Scholarship (£40).
† Passed with honours and awarded Second Scholarship (£30).

Medical Jurisprudence and Hygiene.—D. R. Acheson, J. S. Bellast J. L. Brown, E. S. Dixon, Herbert Emerson, T. H. Houston, Richard M'Culloch, William Megaw, Joseph Patrick, S. J. Turkington, and William Wilson.
Pathology and Hygiene.—Edgar Morison.
Pathology.—John F. Craig.

M.B., B.CH., AND B.A.O. DEGREES.

*Harold Black, Victor L. Connolly, Francis P. Ferran, Samuel K. M'Kee, †Robert A. Kerr, ‡C. Irwin Melville, T. P. M'Murray, Harold D. Manderson, Charles J. Simpson, Walter Stevenson, Robert S. Taggart, and Robert W. Vint.

* First-class honours and Special Scholarship in Medicine (£30).
† First-calss honours and First Scholarship (£20) and Special Scholarship in Midwifery (£30).
‡ Second-class honours and Special Scholarship in Surgery (£30).

Pathology, Medical Jurisprudence, and Hygiene.—Philip J. Gaffikin, George Shaw Glass, Robert J. M'Feeters, U. J. G. Mulligan, and E. F. Ward.
Medical Jurisprudence and Hygiene.—William Boyd.

D.P.H. DIPLOMA.

William Burns, L.R.C.P. & S.E., William Godfrey, M.B., Brian O'Brien, M.B., James Shaw, M.B., and Andrew Trimble, M.B.

M.D. DEGREE (*by Thesis*).

*James Stuart Dickey, †Samuel Hamilton, †Robert Foster Kennedy, Marion B. Andrews, Denis J. Collins, Hugh M. M'Crea, and † Ernest H. M. Milligan.

* Gold medal. † With commendation.

M.D. DEGREE (*by Examination*).

W. A. M'Kee.

ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.—A general meeting of this association was held at the Council Chamber of the British Medical Association offices on July 29th, with Dr. F. G. Crookshank in the chair. The chairman outlined the position that had arisen in consequence of the recent action taken by the representative meeting of the British Medical Association, and pointed out that the Council of the Association would probably draft a new resolution relating to part-time medical officers of health, to be submitted to the next annual representative meeting. It was proposed by Mr. Fremantle and seconded by Dr. Robert Wilkinson that the following resolutions be sent to the Central Council of the British Medical Association and also the divisions:—

This meeting expresses its extreme regret that the representative meeting has not rescinded Minute 234, but welcomes its reference to the Council for reconsideration, and trusts that the whole question will now be considered in the light of the general interests of the medical practitioner and his varied appointments in the public service.

It was also resolved:—

That in the opinion of this meeting no evidence has yet been adduced to show that the interests of the public health suffer when, as is usually the case, a medical officer of health engages in work other than the restricted duties of his office, and no reason exists for differentiation in respect of conditions of tenure or superannuation between part and whole-time medical officers.

Mr. C. H. W. Parkinson suggested the feasibility of a federation of all the various societies of part-time medical officers, such as Poor-law, police surgeons, public vaccinators, &c. He urged that one large society would be much more likely to effect good than many smaller ones. General approval was expressed, and it was agreed to refer the matter to the council for consideration at its next meeting in October. In the evening a dinner was held at the Holborn Restaurant, Dr. Crookshank in the chair, at which Mr. A. G. R. Foulerton, county medical officer of health of Sussex, in proposing the toast of "The Association," said that he was opposed to the municipalisation of medicine which would result if part-time appointments were abolished. In some appointments whole-timers were necessary, but in small districts part-time appointments were better for the public. He had never had any complaints of unfair conduct on the part of part-time men towards the other practitioners of the district. Dr. Crookshank, in reply, emphasised the change in professional opinion that had taken place during the year, and the importance of the present part-time system to the public as well as the profession. Mr. Arnold Ward, M.P., said that he was in favour of the general principles of the Association and of individualistic as against socialistic efforts. He advised the Association to obtain the support of their profession in Parliament. Mr. Fremantle proposed "The Kindred Societies," and Dr. A. Drury, president of the Association of Public Vaccinators of England and Wales, replied in sympathetic terms. The honorary secretary of the Association of Medical Officers of Health, Mr. D. A. Belilios, briefly responded to the toast of "The Officers."

DONATIONS AND BEQUESTS.—The late Mr. Enoch Hendy, of Fishponds, Bristol, willed nearly £17,000 to charities. He bequeathed £2000 each to the Bristol Royal Infirmary, Bristol General Hospital, and Jubilee Convalescent Home, Durdham Downs, Bristol; £1000 to Müller's Orphanage, and £500 to the Brompton Consumptive Hospital. After giving £1600 to various religious schools, the residue is to be divided equally between the Bristol Eye Hospital, Bristol Eye Dispensary, Bristol Blind Asylum, Deaf and Dumb Institution, Bristol Children's Hospital, and the Bristol Dispensary.—The late Mrs. Francis Palmer of Tidenhall, Gloucestershire, has bequeathed £500 to the Fielding Palmer Cottage Hospital, which institution was built by her.—The late Mr. Richard Peyton of Edgbaston, Birmingham, has bequeathed £3000 to the Birmingham General Hospital; £2000 to Queen's Hospital, Birmingham; £3000 to the Birmingham Midland Free Hospital for Sick Children (providing that the erection of the new hospital be begun within three years of the testator's death); £2000 to the Birmingham and Midland Hospital for Women; £1000 each to the Birmingham and Midland Counties Sanatorium, Blackwell; the Deaf and Dumb Institute, Edgbaston; the General Institute for the Blind, Edgbaston; and the Birmingham General Dispensary. The testator has also left several smaller sums to medical charities.—Miss H. Crooke has presented to the Royal Surrey County Hospital, in memory of her father, £1000 for an

X ray and electrical department.—The following gifts have been made to the undermentioned institutions by Mr. J. Ephraimson of Bradford: Royal Infirmary, Leeds, £2500; Children's Hospital, Leeds, £250; and Royal Infirmary Samaritan Society, Leeds, £100.—The committee for the removal of King's College Hospital to South London has received a cheque for £1000 from an anonymous donor for the purpose of naming a bed (to be called the "Inter Cruces" Bed) in the new hospital at Denmark Hill.—The late Mr. John Harris has bequeathed £500 to the Jewish Hospital and Home for Incurables, and £200 each to the London Hospital, the Victoria Park Hospital, the Jewish Orphan Asylum, Norwood, and the Jews' Deaf and Dumb Home.—The late Miss Ann Woodward has bequeathed £500 each to the Birmingham General Hospital, the Birmingham and Midland Skin and Urinary Hospital, and the Birmingham and Midland Eye Hospital; and £200 each to the Birmingham General Dispensary, the General Institution for the Blind, Edgbaston, and the Deaf and Dumb Institution, Edgbaston; and £100 to the Royal Orthopædic and Spinal Hospital, Birmingham.

A REMARKABLE case, once more illustrating the need of legislation to protect the public against themselves and against "quacks," was heard on July 25th at the Basingstoke county court. Mr. C. H. Stevens, of Worple-road, Wimbledon, who described himself as "an unregistered lung specialist," was sued by Mrs. Bramley of Cliddesden for £10, a sum promised by the defendant in his advertisements to any patient whom he did not cure of consumption. Mr. Bramley answered Mr. Stevens's advertisement and was under treatment for a year, when he died from pulmonary tuberculosis and acute bronchitis. The defendant denied any contract to forfeit £10 in case of failure, and said these advertisements with that offer did not appear till after Mr. Bramley's death. Bramley paid £2 for three months' treatment; that was all there was between them. After evidence showing that defendant offered the widow 25s. to withdraw her case, Stevens (who carries on an extensive business in Wimbledon and has "Consumption and Lung Specialist" on a brass plate) was closely pressed by judge and counsel as to the composition of his "medicine" and its curative merits. After heated protests and long hesitation he said he studied the curing of consumption under Dr. Stuart, of Somerset Hospital, Cape Town. Fifteen years ago, quite by accident, he came across a native remedy at Maseru, Basutoland. A native quack doctor, he said, gave him the recipe for nothing—not in writing, but showed him the plants it was made from. After great pressure Stevens declared that he still imported these Basuto plants to Wimbledon, but he would not say when the last consignment arrived; he wrote this on paper, and the judge said the railway books could be consulted. Further questioned, Stevens said he had been making the £10 no-cure-no-pay offer since last September, but had not yet paid £10 to a failure case; the reason was that he had cured every patient except one. In giving judgment for the payment of the £10 to the widow Judge Gye made some very strong comments. He said it was one of a class of cases of the gravest importance to the public. Quack remedies for consumption were constantly put forward to play upon the fears and hopes of despairing sufferers and their friends. In the majority of cases the persons offering these remedies were wholly unqualified and were simply impostors. These quacks traded intentionally upon the fears and hopes of sufferers. In this case he considered there had been intentional and well-considered fraud. Defendant: I am sorry, your Honour. His Honour: It is a scandalous thing that poor people should be imposed on and led to hope that those near and dear to them will be cured of this disease when it is perfectly obvious that it is nothing in the world more than a quack advertising remedy of not the slightest use. The judge ordered the letters and documents in the case to be impounded.

AYRSHIRE SANATORIUM.—The second annual report of the Ayrshire Sanatorium presented to the "Pulmonary Phthisis Board" by the medical superintendent, Dr. E. E. Prest, is interesting reading. Before giving an account of the working of the sanatorium, Dr. Prest dwells on certain aspects of the treatment of pulmonary tuberculosis which are well worthy of attention by those who are responsible for the management of similar institutions throughout the country. He points out that when the disease has advanced far enough to cause definite symptoms it becomes highly desirable that some prolonged course of efficient treatment should be undertaken; he also rightly urges that ephemeral periods of improvement in the patient's condition should not allow him or her to imagine that all is well. He adds that it is usually fairly easy to restore a patient to a feeling of well-being by a few weeks' residence in a sanatorium; the difficulty arises when it becomes necessary to persuade him that he is not perfectly well, and that a slight indiscretion on his part may bring on a fresh spread of the trouble. These remarks apply more especially to patients among the working classes, but even in the case of individuals in private sanatoriums the same objections may be raised against a stay of some months after the acute symptoms have abated. Since the last report the accommodation has been doubled. The sanatorium has been open to receive patients since July 16th, 1906, and up to March 31st, 1910, there have been 208 patients admitted; of these, 121, or a little over 58 per cent., were males, and 87, or a little over 41 per cent., were females. Of the male patients one was found to be suffering from malignant disease of the lung; in addition, four of the males and six of the females represent re-admissions. The actual number of patients suffering from pulmonary tuberculosis treated was therefore 197, made up of 116 males and 81 females. Some interesting tables of results are printed in this report. The tables, however, are only compiled with regard to cases which were admitted prior to July, 1909, as no good purpose could have been served by accounting for admissions beyond that time. The published results of discharged patients deal with 140 cases, of which 61 were women and 79 men. Of the female patients 31, or slightly over 50 per cent., were engaged in various employments; 7, or about 11 per cent., were alive but not working; 23, or over 37 per cent., were dead. Of the male patients 30, or nearly 38 per cent., were able to work; 11, or nearly 14 per cent., were alive but not working; and 38, or over 48 per cent., were dead. The somewhat high death-rate is accounted for by the stages of the disease during which the patients were admitted. Of the women, 37 per cent. were in the first stage, 29 per cent. in the second, and 32 per cent. in the third. Of the men, 26 per cent. were in the first stage, 33 per cent. in the second, and 40 per cent. in the third. The classification was adapted from that of Dr. Turban. These figures plainly demonstrate the better results which are obtained when the disease is met with in the early stage. Of the female patients admitted in the first stage over 73 per cent. are working, and of the male patients over 85 per cent.

BOOKS, ETC., RECEIVED.

ALPHA UNION, THE, Letchworth, Herts. HEADLEY BROTHERS, London.
Applied Religion. By W. Winslow Hall, M.D. Price 1s.

AMERICAN DERMATOLOGICAL ASSOCIATION (Secretary: Grover W. Wende, M.D., Buffalo).
Transactions of the American Dermatological Association at its Thirty-third Annual Meeting held in Philadelphia, June 3rd, 4th, and 5th, 1909. Price not stated.

ARNOLD, EDWARD, London.
Physical Chemistry, its Bearing on Biology and Medicine. By James C. Philip, M.A., Ph.D., D.Sc. Price 7s. 6d. net.

BALE (JOHN), SONS, AND DANIELSSON, LIMITED, London.
Tropical Medicine and Hygiene. By C. W. Daniels, M.B. Cantab., M.R.C.P. Lond. With a chapter on Snakes, by A. Alcock, C.I.E., M.B., F.R.S., Lt.-Col. I.M.S. (retd.). In three parts. Part II., Diseases due to the Metazoa. Price 7s. 6d. net.
How to Cut the Drug Bill. By A. Herbert Hart, M.D. Price 2s. 6d. net.

BOOTHROYD, ELIOT, London.
Low's Handbook to the Charities of London. 1910. (75th Year of Publication.) Price 1s.

CASSELL AND COMPANY, LIMITED, London, New York, Toronto, and Melbourne.
Movable Kidney, its Etiology, Pathology, Diagnosis, Symptoms, and Treatment. By William Billington, M.S. Lond., F.R.C.S. Price 7s. 6d. net.

CHURCHILL, J. AND A., London.
Saint Thomas's Hospital Reports. New Series. Edited by Dr. H. G. Turney and Mr. W. H. Battle. Price 8s. 6d. net.

CINCINNATI MEDICAL BOOK COMPANY, Cincinnati, U.S.A. SIEGLE, HILL, AND CO., London.
Practical Hydrotherapy. A Manual for Students and Practitioners. By Curran Pope, M.D. Price 27s. 6d. net.

DUCKWORTH AND Co., London.

Agricultural Bacteriology, Theoretical and Practical. By John Percival, M.A., F.L.S. Price 7s. 6d. net.

FALCONER, JOHN, Dublin. BAILLIÈRE, TINDALL, AND COX, London. JAMES THIN, Edinburgh. JOHN WRIGHT AND Co., Bristol.

Transactions of the Royal Academy of Medicine in Ireland. Vol. XXVIII. Edited by James Craig, M.D., F.R.C.P.I., General Secretary. Price not stated.

FROWDE, HENRY (OXFORD UNIVERSITY PRESS), London, New York, Toronto, and Melbourne.

The Ruins of Fountains Abbey. By the Rev. A. W. Oxford, M.A., M.D. With Illustrations and Photographs by J. Reginald Truelove, A.R.I.B.A. Price 3s. 6d. net.

GRIFFIN, CHARLES, AND Co., LIMITED, London.

The Work of the Digestive Glands. Lectures by Professor I. P. Pavlov. Translated by W. H. Thompson, Sc.D., M.D., F.R.C.S. Eng. Second English edition. Price 10s. 6d. net.

HANCOCK PRESS, THE, Post Office Box 2789, Boston, Mass., U.S.A.

The Religio-Medical Masquerade. A Complete Exposure of Christian Science. By Frederick W. Peabody, LL.B., of the Boston Bar. Price $1.00.

HARPER AND BROTHERS, New York and London.

The Science of Happiness. By Henry Smith Williams, M.D., LL.D. Price 7s. 6d. net.

KIMPTON, HENRY, London. STENHOUSE, ALEXANDER, Glasgow.

A Practical Treatise on Fractures and Dislocations. By Lewis A. Stimson, B.A., M.D., LL.D. (Yale). Sixth edition, revised and enlarged. Price 25s. net.

KING, P. S., AND SON, London.

Medical Examination of Schools and Scholars. Edited by T. N. Kelynack, M.D. With an Introduction by Sir T. Lauder Brunton, Bart., M.D., F.R.S. Price not stated.

LAURIE, T. WERNER, London.

The Law of the Bolo. By Stanley Portal Hyatt. Price 6s.

Verity Lads: Being Letters of Harry Verity to his Uncle Donty. By Keighley Snowden. Price 6s.

LEWIS, H. K., London.

The Extra Pharmacopœia of Martindale and Westcott. Revised by W. Harrison Martindale, Ph.D., F.C.S., and W. Wynn Westcott, M.B. Lond., D.P.H., H.M.'s Coroner for North-East London. Fourteenth edition. Price 12s. net.

Organic Analysis Chart. By W. Harrison Martindale, Ph.D., Marburg, Pharmaceutical Chemist. A Supplement to The Extra Pharmacopœia. 14th Edition. Price 3s. 6d. net.

Vaccine Therapy, its Theory and Practice. By R. W. Allen, M.D., B.S. Lond. Third edition. Price 7s. 6d. net.

Mentally Deficient Children, their Treatment and Training. By G. E. Shuttleworth, B.A., M.D., &c., and W. A. Potts, B.A., M.D., &c. Third edition. Price 5s. net.

LIPPINCOTT (J. B.) COMPANY, Philadelphia and London.

Diseases of the Heart and Aorta. By Arthur Douglass Hirschfelder, M.D. With an Introductory Note by Lewellys F. Barker M.D., LL.D. Price 25s. net.

LONGMANS, GREEN, AND Co., London, New York, Bombay, and Calcutta.

The Principles of Gynæcology. By W. Blair Bell, B.S., M.D. Lond. Price 21s. net.

Sanitary Law in Question and Answer. For the Use of Students of Public Health. By Charles Porter, M.D., B.Sc., M.R.C.P. Ed. Price 2s. 6d. net.

Wounds in War. The Mechanism of their Production and their Treatment. By Colonel W. F. Stevenson, C.B., K.H.S., R.A.M.C. (retd.). Third edition. Price 16s. net.

MACKENZIE, JOHN F., Edinburgh.

Three Lectures on Epilepsy. Being the Morison Lectures delivered before the Royal College of Physicians of Edinburgh in 1910. By William Aldren Turner, M.D., F.R.C.P. Lond. Price 3s. 6d. net.

MACMILLAN AND Co., LIMITED, London.

A System of Medicine. By Many Writers. Edited by Sir Clifford Allbutt, K.C.B., M.A., M.D., LL.D., F.R.S., &c., and Humphry Davy Rolleston, M.A., M.D., F.R.C.P. Vol. VII., Diseases of the Muscles, The Trophoneuroses, Diseases of the Nerves, Vertebral Column, and Spinal Cord. Price 25s. net.

MILLS AND BOON, LIMITED, London.

The Parson's Pleasance. By P. H. Ditchfield, M.A., F.S.A., F.R.S.L., F.R.Hist.S. Price 10s. 6d. net.

REDMAN, LIMITED, London.

Progressive Medicine. Edited by Hobart Amory Hare, M.D., assisted by Leighton F. Appleman, M.D. Volume II. June, 1910. Price 12s. net per volume, or £2 net, annual subscription.

SCIENTIFIC PRESS, LIMITED, London.

Medical Homes for Private Patients, 1910. A Classified Directory with Lists of Medical Consultants. Edited by R. Pritchard Binnie. Price 6d. net.

WALKER, JOHN, AND Co., LIMITED, London.

Walker's Medical Loose-Leaf Pocket Book. Prices, 8s. 6d., 11s. 6d., or 12s. 6d., according to binding. (Refills and Transfer Cases also supplied.)

WOOD, WILLIAM, AND COMPANY, New York.

American Practice of Surgery. Editors: Joseph D. Bryant, M.D., LL.D., and Albert H. Buck, M.D., of New York City. Complete in eight volumes. Vol. VII.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BEATTIE, THOMAS, M.D. Durh., has been elected Professor of Therapeutics in the Durham College of Medicine, Newcastle-on-Tyne.

LAWTON, CHARLES W., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

LOVETT, T., M.B., B.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Ollaberry District of the county of Shetland.

MAGAREY, A. CAMPBELL, M.B., B.S. Adelaide, M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at St. Mark's Hospital for Cancer, Fistula, and other Diseases of the Rectum.

OATES, GEOFFREY E., M.D., B.S. Lond., M.R.C.P. Lond., D.P.H. Cantab., has been appointed Medical Officer to the Birmingham Education Committee.

O'NEILL, S. H., M.D., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

RANKINE, ROGER AIKEN, M.B., B.S. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant Physician at the Crichton Royal Institution, Dumfries.

STALEY, J. D., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Youlgreave District of the county of Derby.

TAGGART, C. C., M.D., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRMINGHAM GENERAL HOSPITAL.—House Surgeon, Resident Pathologist, and House Physician for six months. Salary £50 per annum, with residence, board, and washing. Also Two Assistant House Surgeons for three months. Salary £40 per annum, with residence, board, and washing.

BOOTLE, BOROUGH OF, HOSPITAL FOR INFECTIOUS DISEASES.—Resident Medical Officer. Salary £120 per annum, with board, washing, and apartments.

BRISTOL ROYAL INFIRMARY.—Honorary Medical Registrar. Also Resident Casualty Officer for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

BURY ST. EDMUNDS, WEST SUFFOLK GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

CANCER HOSPITAL, Fulham-road, London, S.W.—House Surgeon. Salary £70 per annum. Also Director of the Electrical and Radio-Therapeutic Department. Salary £150 per annum.

CARMARTHEN, JOINT COUNTIES ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, laundry, &c.

CUMBERLAND COUNTY COUNCIL.—Assistant to the County Medical Officer of Health. Salary £225 per annum and out-of-pocket expenses.

CHELTENHAM GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £75 per annum, with board and lodging.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £50 per annum, with board, apartments, and laundry.

DURBAN, NATAL, CORPORATION PUBLIC HEALTH DEPARTMENT.—Medical Officer for Municipal Tuberculosis Bureau. Salary £600 per annum.

DURHAM COUNTY HOSPITAL.—House Surgeon. Salary £120 per annum, with board and lodging.

FRENCH HOSPITAL, 172, Shaftesbury-avenue, W.C.—Resident Medical Officer, unmarried. Salary £100 per annum, with full board and laundry.

GLASGOW, WESTERN INFIRMARY.—Visiting Physician, also Visiting Surgeon.

GREENOCK (BURGH) SCHOOL BOARD.—School Medical Inspector. Salary £300 per annum, rising to £350.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HEREFORD, HEREFORDSHIRE GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with some extra emoluments, board, apartments, and washing.

LANCASTER (ROYAL) INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with residence, board, attendance, and washing.

LEEDS PUBLIC DISPENSARY.—Junior Resident Medical Officer. Salary £100 per annum, with board and lodging.

LINCOLN GENERAL DISPENSARY.—Resident Junior Medical Officer, unmarried. Salary £175 per annum, with apartments, fire, and lighting.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Two House Physicians and Three House Surgeons. Salary at rate of £60 per annum, with board and residence.

MACCLESFIELD GENERAL INFIRMARY.—Senior House Surgeon. Salary £100 per annum, with board and residence.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—House Surgeon. Also Assistant House Surgeon. Salaries £100 and £80 respectively, with board, residence, and washing.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—House Surgeon. Salary £80 per annum, with apartments and board.

MANCHESTER ROYAL INFIRMARY AND DISPENSARY.—Honorary Assistant Surgeon.

MEDICAL DEPARTMENT OF THE NAVY, London, S.W.—Dental Surgeon for duty with the Naval Forces in the United Kingdom. Salary £1 per diem.

MIDDLESEX HOSPITAL.—Assistant Anæsthetist. Salary £40 per annum.

NORFOLK AND NORWICH HOSPITAL, Norwich.—Honorary Pathologist and Bacteriologist.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

OXFORD, RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—House Surgeon, unmarried, for six months. Also Junior House Surgeon, unmarried, for six months. Salary in each case at rate of £80 per annum, with board, &c.

PORTSMOUTH, ROYAL PORTSMOUTH HOSPITAL.—Assistant House Surgeon. Salary £75 per annum, with board, &c.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Resident Medical Officer for four months. Salary at rate of £60 per annum, with board, residence, and washing.

REDHILL, EARLSWOOD ASYLUM.—Assistant Medical Officer, unmarried. Salary £130, rising to £150 per annum, with board, lodging, washing, &c.

ROXBURGH AND SELKIRK COUNTY COMMITTEES ON SECONDARY EDUCATION.—School Medical Inspector. Salary £3.0 per annum with out-of-pocket expenses.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen Commissions.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Bridge-road, S.E.—Junior Resident Medical Officer. Salary at rate of £50 per annum, with board and washing.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £80 per annum, all found.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £50 each per annum, with board, lodging, and washing.

SHEFFIELD ROYAL INFIRMARY.—Seventh Resident Medical Officer. Salary £60 per annum, with board and residence.

SHREWSBURY, SALOP INFIRMARY (THE COUNTY HOSPITAL).—House Physician. Salary at rate of £70 per annum, with board and apartments.

SOUTH AFRICA, SOUTH AFRICAN COLLEGE, Capetown.—Professors of Human Anatomy and Physiology. Salary in each case at rate of £500 per annum, with free passage to Capetown.

SUNDERLAND INFIRMARY.—House Surgeon. Salary £80 per annum, with board, residence, and washing.

SUNDERLAND, MONKWEARMOUTH AND SOUTHWICK HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board and lodging.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £75 per annum, with board, residence, &c.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Two House Physicians and Three House Surgeons for six months. Board, lodging, and laundry provided.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL.—House Surgeon.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Midhurst, in the county of Sussex.

THE Secretary of State for the Home Department, Whitehall, S.W., gives notice of a vacancy as Medical Referee under the Workmen's Compensation Act, 1906, for ophthalmic cases, including cases of miners' nystagmus, arising in County Court Circuit No. 25.

Births, Marriages, and Deaths.

BIRTHS.

DOBLE.—On August 9th, at The Firs, Reedham S.O., Norfolk, the wife of F. Carminow Doble, M.R.C.S. Eng., L.R.C.P. Lond., of a daughter.

ELLIS.—On August 2nd, at 3, Maple-road, Bournville, near Birmingham, the wife of F. W. Ellis, M.D., F.R.C.S. Eng., of a son.

GARDNER.—On August 4th, at 23, St. John's-hill, Shrewsbury, the wife of Dr. H. Willoughby Gardner, of a son.

HOLMES.—On July 31st, at Down Hall, Rippingale, Lincs, the wife of A. Hewston Holmes, M.D., of a son.

LOCKWOOD.—On August 8th, 1910, at 19, Upper Berkeley-street, Portman-square, W., the wife of Charles Barrett Lockwood, of a son.

WROUGHTON.—On August 4th, at "Boroughfield," Bricket-road, St. Albans, the wife of Captain A. O. B. Wroughton, R.A.M.C., of a daughter.

MARRIAGES.

LESLIE—HARLEY.—On August 9th, in London, W. Murray Leslie, M.D., F.R.C.S., Barrister-at-Law, of Cadogan-place, S.W., to the Honourable Mrs. Harley, the younger daughter of Lord Rotherham.

MACCORMAC—HOLLIS.—On August 4th, at Holy Trinity, Sloane-street, William L. Maccormac, M.B., F.R.C.S.E., to Maud, youngest daughter of the late John Manclerk Hollis, of Garforth.

THOMAS—LAUDER.—On August 4th, at Marylebone Parish Church, Frank Leslie Thomas, M.B., B.S. Lond., L.R.C.P., M.R.C.S., to Margaret Mary, only daughter of Alexander Lauder, of Barnstaple.

DEATHS.

HOGUE.—On August 5th, at Roxburgh, Bournemouth, D. W. Hogue, M.D., L.R.C.S. Edin., and Dentist, late of Queen-street, Edinburgh.

PLATT.—On August 3rd, John Edward Platt, M.S. Lond., F.R.C.S., of 157, High-street, Oxford-road, Manchester, aged 44 years.

THOMAS.—On August 5th, at St. Leonards-on-Sea, George Danford Thomas, M.D., M.R.C.S., Senior Coroner for the Counties of London and Middlesex, aged 65 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

HEALTH OF ST. HELENA: REMARKABLE DECREASE OF DEATH-RATE.

IN the report of Lieutenant-Colonel H. L. Gallwey, C.M.G., Governor and Commander-in-Chief of St. Helena, on the Blue-book of the colony for the year 1909, the section devoted to vital statistics, hospitals, &c., contains, as will be seen by the subjoined summary, much matter of more than usual interest. The present estimated population is 3553, and the death-rate in 1909 was abnormally low, being 6·4 per 1000, as compared with 9·6 per 1000 in 1908. There were only 23 deaths. Of these, six were of children under 1 year of age and five of persons between 80 and 90 years. Excluding those 11, only 12 deaths occurred among the islanders between the ages of 1 and 80 years, a rate which works out at 3·4 per 1000. Looking at the fact that St. Helena is situated in the tropics, the figures furnish a very remarkable testimony to a wonderful climate. The death-rates among the civil population for the last eight years have been as follows: 1902, 34·8; 1903, 20·2; 1904, 14·4; 1905, 14·5; 1906, 11·9; 1907, 9·4; 1908, 9·6; and 1909, 6·4. It will be seen that the death-rate in eight years has decreased by no less than 28 per 1000. This wonderful result is not a little due to the greatly improved hygienic conditions under which the islanders live to-day as compared with a decade ago. The number of marriages solemnised during the year was 17, as against 19 in 1908. The marriage-rate among the islanders has decreased from 9·4 per 1000 in 1903 to 4·7 per 1000 in 1909, showing that poverty tends to decrease the marriage-rate among the labouring classes. This fact, no doubt, accounts for the large percentage of illegitimate births, which numbered 27 in 1908 and the same in 1909.

During the months of May and June influenza assumed epidemic proportions. Though many were severe, the bulk of the cases were mild. There were 35 cases of pneumonia, with three deaths—an old woman over 84 years of age and two others over 60 years of age, with constitutions enfeebled by long-standing poverty. In November and December, during the drought, several cases showing injurious effects from the sun's rays came under treatment. During a prolonged period of dry weather the direct solar heat was unusually intense. The most severe case was that of a healthy man, aged about 45 years, who had had fever for ten days after exposure to a hot sun. The symptoms came on suddenly, and death followed during convalescence from a sudden cerebral hæmorrhage before the patient had left his bed. These cases are worthy of note as the sun in St. Helena rarely causes inconvenience, and therefore its occasional potency is apt to be disregarded. With regard to the general aspect of the public health the colonial surgeon, Dr. W. J. J. Arnold, reports: "Frugality in eating and drinking has been a necessary consequence of the straitened economic condition of the islanders, and to this factor might be safely attributed a considerable share in the reduction of the death-rate. The mind of the average inhabitant of the island has always been swayed with the idea in regard to disease that it was the direct infliction of Heaven, and that little or nothing on the individual's part could avail to avert sickness. This idea has been persistently combated in the course of some years' daily contact with the sick and sound, and it is not altogether unwarrantable to conclude that the slow infiltration of a more reasonable view as to the influence of diet and all the habits of everyday life in preventing disease has had beneficial results. The practical application of the principles of hygiene in the schools has undoubtedly improved the standard of health amongst the children."

The Governor expresses full concurrence in these views, and adds that hygiene and sanitation in St. Helena to-day are of a higher standard than they have ever before been in the history of the colony. Although a great improvement is discernible among the poorer classes in connexion with the combating of disease and the putting into practice the simple rules of hygiene, yet amongst the more ignorant of the population, and even amongst those who have had some education, a belief in witchcraft and the power of the evil eye still survives. Different ailments are not infrequently attributed by the victims of this belief to a spell having been cast upon them by some person evilly disposed towards them. A few mischievous persons have traded on this deplorable credulity, and under the pretence of removing the spell (or "poisons," as it is called) by means of potions or herbs have received much ill-gotten gain. The harmfulness of the evil referred to has been shown in numerous instances where people have drifted into a condition of bodily and mental wretchedness through believing they were under a spell when in reality no disease of any kind was present. Many ordinary ailments attributed by the victims to "poison," or evil influence, have dragged on for weary months when by proper medical treatment they would have been speedily cured. The quacks who have enriched themselves by trading on such ignorance and credulity have in the past carried on their nefarious operations unchecked, but an ordinance

has now (1910) come into force which will restrain them. Under this ordinance it is unlawful for any person to practise medicine or surgery, or to prescribe any medical or surgical treatment in St. Helena for fee or reward unless he is possessed of one or more of the qualifications which would entitle him to practise medicine or surgery in the United Kingdom.

A case of leprosy in a child, aged 7 years, was notified. The child contracted the disease from his grandfather, who died in 1908, after having suffered many years from leprosy. Suitable quarters were erected in Rupert's Valley for the segregation of the child on a site well suited for isolation. The boy is cared for by his grandmother, who voluntarily undertook the duty, and has been under control and treatment since August, 1909. There were 164 admissions to the island hospital during the year and seven deaths. Over 3000 out-patients were treated. Chloroform was administered in 44 cases, the majority being minor surgical operations. A small fund inaugurated three years ago to assist poorer patients in defraying hospital charges has proved of great service. At a time when so many of the population are without work and lack the nourishment indispensable to recovery from illness or injury, the importance of such a fund (which is derived entirely from voluntary contributions) is apparent. The Governor further writes: "The medical care of the whole population during the year again fell entirely on Dr. Arnold's shoulders. On more than one occasion he should have laid up, but could not possibly do so. I am glad to say that provision is made in the Colony's estimates for 1910 for an allowance to the colonial surgeon to cover (in part) the salary of an assistant. I cannot testify too highly to the manner in which Dr. Arnold has performed his duties single-handed for over three years. His devotion to duty is thoroughly recognised and appreciated by the whole community."

COUNTRY HOLIDAYS FOR CHILDREN.

THE Bishop of London has issued an urgent appeal for £8000 on behalf of the Children's Country Holiday Fund, and this appeal we earnestly endorse. Out of the enormous number of the children of the poor who are compelled to spend their lives, year after year, in the grimy streets, courts, and alleys, which, alas, still remain as blots on our otherwise great and sanitary metropolis, 45,000 little ones have been selected by the voluntary workers of the fund for a few days holiday in the country. It is difficult fully to realise the great amount of good which may result to the child morally and physically by a change from a vitiated environment to one where it can obtain pure air and food, and opportunities of expanding the child mind. Already 23,000 children have been accorded such an opportunity, but there remain 22,000 who, in spite of the efforts which the parents have been induced to make in order to pay their share of the cost and to clothe the children decently, have not yet been despatched. £8000 are still required to complete the necessary payments. The cost per child is small, as every 10s. sent to the honorary treasurer, the Earl of Arran, at 18, Buckingham-street, Strand, W.C., ensures a fortnight's change of environment for one child. Pity itself should be an adequate appeal, but the health of the child has an important bearing on the health of the next generation, and both charity and wisdom claim that the Bishop of London's appeal should meet with a prompt response.

PARENTAL APATHY.

AT the Exeter police court recently six parents were fined from 5s. to 2s. each for allowing their children to become verminous after having been cleansed by the education authority at the cleansing station.

TWO CASES UNDER THE WORKMEN'S COMPENSATION ACT.

AT the Chippenham (Wilts) county court recently the widow of a labourer sued the Bath Stone Firms for compensation under the Act. The deceased man had sprained his lumbar muscles whilst in the employment of the firm. The medical certificate of death stated that the cause was "heart failure produced by broncho-pneumonia, which arose from the lumbar muscles having been sprained." For the defence three medical witnesses were called who contended that the sprain in the lumbar region, whilst producing general depression of the system, could not cause broncho-pneumonia; there must be a local as well as a general loss of resistance to produce broncho-pneumonia. It was also stated that there was no case on record of broncho-pneumonia following injury to the lumbar muscles. His honour Judge Gwynne James gave judgment for the respondents.—A seaman, at the Gloucester county court on July 23rd, claimed compensation under the Act from the Dale Steamship Company, Bristol. In November last the applicant, when at Alexandria, slipped whilst hoisting a barrel of flour, and as a result a hernia followed. For the defence it was contended that if applicant wore a suitable truss he could follow his employment. His honour Judge Ellicott, in awarding the seaman his case with costs, said he was of opinion that it would be highly dangerous for the man to work even with a truss on any vessel which did not carry a surgeon. These brief notes sufficiently show that a medical assessor would often be of great value in such cases.

AN OBSTINATE CASE OF PRURITUS.

To the Editor of THE LANCET.

SIR,—I should be greatly obliged if any of your readers could suggest treatment for relief of a case of general pruritus of 18 months' standing. The patient is a man 59 years old. Eight years ago he had a slight attack of a similar nature which lasted a few weeks. There is no definite eruption of the skin, but a good deal of scaling of the epidermis all over the body. The itching is so intense that he scratches himself raw in many places. His general health and appetite are good, and all the internal organs appear sound. The itching is felt even in the eyeballs, throat, and tongue; he has attacks of asthma about once or twice in five or six weeks. He has been treated as an in-patient in hospital for five months, during which time he had a course of medicated baths, thyroid tablets, and various unguents, including ichthyol ointment; he also has had salicylate and arsenical mixtures for many weeks. Nothing seems to relieve the itching or produce more than temporary abatement. Latterly he sweats profusely. There are no pediculi or acari.

I am, Sir, yours faithfully,

P.

"CHRISTIAN SCIENCE."

AN inquest was held at Chelsea on August 6th on the death of Elizabeth Rowe, aged 34 years, a nurse. She was suffering from tuberculosis, and according to the evidence of the medical man who was called after death, Mr. Randolph L. Grosvenor, she could not have lived very long, but relief could have been afforded by tapping the dropsy from which she also suffered, and proper medical treatment might have prolonged her life. Two "Christian Science" practitioners gave evidence. Mrs. Ethel Harriet Martin of Chelsea, in whose house Miss Rowe died, said that Miss Rowe agreed to pay 1 guinea a week and received "Christian Science" treatment. She had only been at the house a little more than a week. Miss Mary Elizabeth Bovet of Chelsea said she was a "Christian Science" practitioner and received 2s. a week for treating Miss Rowe. She had recommended the patient to Mrs. Martin. The treatment, she said, consisted to a great extent of prayer. Mr. C. L. Drew, the coroner, pointed out that a clergyman would pray gratuitously, but Miss Bovet said that the clergy did not undertake to heal by prayer. The jury returned a verdict of death from natural causes.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

THE following Congresses, Conferences, and Exhibitions are announced for the next four weeks:—

August 21st–26th (Brussels).—International Home Education Congress.
" 31st (Sheffield).—British Association for the Advancement of Science.
Sept. 5th–10th (Brighton).—Congress of the Royal Sanitary Institute.
" 10th–14th (Brussels).—Second International Congress on Occupational Diseases.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon: Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.

TUESDAY.—10 A.M.,: Gynæcological Operations 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Bernstein: Laboratory Aids to Diagnosis.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M., Lecture: Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Diseases of Women.

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye.

FRIDAY.—10 A.M., Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. B. Harman: Corneal Ulcers.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Clinical Theatre, London Hospital, Mile End-road, E.

MONDAY.—2 P.M., Clinical Demonstration: Dr. Wall: Diseases of the Lungs.

TUESDAY.—2 P.M., Clinical Demonstration: Dr. Grünbaum: Diseases of the Kidneys.

WEDNESDAY.—2 P.M., Clinical Demonstration: Dr. Hutchison: Diseases of the Digestive System and Children's Diseases

THURSDAY.—2 P.M., Clinical Demonstration: Dr. T. Thompson: Diseases of the Nervous System.

FRIDAY.—2 P.M., Clinical Demonstration: Dr. L. Smith: Diseases of the Heart and Vessels.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (15th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (16th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (17th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (18th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (20th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

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MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

The Index and Title-page to Vol. I. of 1910, which was completed with the issue of June 25th, were given in THE LANCET of July 2nd.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 10th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Aug. 4	29·70	S.W.	...	126	71	56	57	61	Fine
,, 5	29·69	W.	0·39	94	66	58	58	61	Overcast
,, 6	29·94	W.	0·12	124	68	54	57	59	Cloudy
,, 7	29·96	W.	...	113	71	53	56	60	Cloudy
,, 8	29·86	N.	...	84	66	55	59	62	Cloudy
,, 9	29·86	NNE	...	103	67	58	57	59	Overcast
,, 10	30·02	NNE	0·12	120	68	55	56	59	Fine

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